The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 122, NO. 14 — CHICAGO, ILLINOIS — JULY 31, 1943

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A STATISTICAL STUDY OF MINOR INDUSTRIAL BURNS

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DETROIT

Much has been written on the subject of burns during the past decade and a half, and a large amount of laboratory and clinical investigation has been carried out. Nevertheless at the present time there is no method of local treatment which is accepted as standard by those who take care of these injuries. However, it can be said that for the more serious or hospitalized cases some unanimity of opinion is beginning to be discernible. For example, there are few proponents of the coagulation methods which make use of such chemicals as tannic acid.

It has been suspected that there has been considerably less standardization of the treatment of minor burns, such as are frequently seen in industrial plants. It was decided that it would be of considerable interest to know how these small injuries are being cared for and approximately what results are being obtained. The following industrial surgeons were consulted and readily agreed to cooperate in a survey of minor burn treatment in the plants of the three large automobile companies, now engaged 100 per cent in the stupendous production of war material: Dr. C. D. Selby, consultant, General Motors Corporation; Dr. John J. Prendergast, medical director, Chrysler Corporation, and Dr. Harley Krieger, chief surgeon of the Ford Motor Company. This survey thus represents the burns occurring in a group of approximately 250,000 employees.

A supply of forms for the making of weekly reports was sent to the medical departments of a large number of plants. The heading on this form is shown in the accompanying tabulation.

The plant surgeons were instructed not to report a case until treatment was finished and the employee had been discharged from treatment. The response to the questionnaire was gratifying. Of 7,608 cases reported, 5,609 were tabulated for study. The other cases were not included because of insufficient data.

The most striking fact brought out in the study was that no less than eighty-four different substances were used in the treatment of the burns in this series! Many of the remedies were proprietary preparations, some of which were adequately described on the labels or advertising literature; others were described ambiguously. There were several different brands of certain more or less standard substances, such as tannic acid jelly and vitamin ointments. Each brand was tabulated separately, which helped to swell the list of different materials to the high figure just mentioned. It would not be desirable in this paper to mention by name all the substances studied, but rather an attempt will be made to group the various remedies into categories to facilitate discussion.

Before considering the methods of treatment, it would be well to review the pathology of the average minor industrial burn. A frequent cause of the injury is brief contact with a hot object. For example, the following causes were listed in one weekly report from a plant: hot metal, hot scale, arc weld, cutting torch, steam blower, hot shaving. Another listed "burned finger on hot steel," "burned chest on hot chips," "burned forehead on lamp," "burned forearm on air hose." If we use the simple classification for the depth of burns, i. e. superficial or deep, most of these injuries would be classified as superficial burns, producing only a painful erythema. Others might be associated with vesicle formation, while the splash of molten metal may occasionally destroy the whole thickness of the skin.

What are we trying to accomplish in the treatment of these small injuries? Our aim should be to (1) prevent disability (get the man back on the job in a matter of minutes), (2) relieve pain, (3) prevent or minimize infection and (4) favor early healing, with a minimum of dressings. These objectives are different in many ways from those we have in mind when we are treating the serious burn in the hospital. In this instance we are concerned with saving the patient's life, which involves considerations of shock due to plasma loss, serious infection, scarring and contractures.

TANNIC ACID

Why has tannic acid been used in the treatment of minor burns? Probably largely because it has had wide acceptance in the treatment of serious burns, and theoretically what is good for a large wound should be good for a smaller one. The large burn is tanned in an attempt to prevent undue leakage of plasma and the resulting secondary shock. This is not a consideration in the minor burn. The large burn is treated with a coagulating agent to "fix" the injured proteins with the idea of preventing burn toxemia. There is no such hazard in the small burn. Furthermore, we now believe that under certain circumstances, notably with slow drying of the eschar, the tannic acid may have a specific toxic effect on the liver. Also tanning methods have not reduced the incidence of infection. The formation of an eschar requires that the part be left exposed to

Read before the Industrial Medical and Surgical Conference on Wartime Medical Problems, Detroit, April 8, 1943.

the air for drying and that it be kept quiet for several hours. This would interfere with getting the man back on the job. One surgeon had this to say about the use of a brand of tannic acid jelly: "Our most serious complaint is that the dressing adheres to the medicated surface, making it impossible to remove the gauze without disturbing the crust formed by the ointment. Because of the necessity of keeping men on the job and the fact that the constant motion of the injured part tends to irritate the burned area, the usefulness of the dressing has not been demonstrated. A dressing of a lubricating quality seems to be adapted to industrial practice more readily than tannic acid jelly." There is considerable evidence that tannic acid delays epithelial regeneration.[1]

In the recent study six brands of tannic acid jelly were reported. One brand was used in the treatment of 560 cases, with an average healing time of 7 days; each patient received an average of 5.6 treatments. Another brand of almost identical composition was used in 347 cases, with an average healing time of 3.7 days. It is not likely that there was actually a difference in

Report of Industrial Burns

Data requested for use by the National Research Council

Plant..... Location.....
Report for week ending..... Submitted by.....
Plant Surgeon

No.	Cause of Burn (Example)	Treatment	No. of Treatments	Days Before Healing	Days Lost	Days Hospitalized
1	Hot metal...	Boric ointment	3	5	0	0
2	Steam.....	Tannic acid jelly	2	4	0	0

therapeutic response to these almost identical compounds; probably the discrepancy is due to differences in treatment practices and methods of keeping records.

GREASY OINTMENTS

In the study of greasy ointments it was reported that 182 cases were treated with boric acid ointment. The average number of treatments was 2.3 and the average healing time was 2.5 days. Plain petrolatum was used for 32 cases, with an average time of 2 days and an average of 1.7 treatments per patient. Seventy-three patients were treated with zinc oxide ointment. The average healing time was 6.4 days, the average number of treatments being 4.6.

When the tannic methods were in vogue it was considered unfortunate if a patient with burns arrived at the hospital with any sort of greasy ointment applied to his skin. Now there is a swing of the pendulum in the other direction; many groups who have had extensive experience in the treatment of burns use fine mesh gauze impregnated with petrolatum or 5 per cent boric acid ointment. There is disagreement on two points in connection with the treatment of burns in this manner. 1. How much should the wound be cleansed and debrided? 2. How much pressure should be used and how important is it? One school, represented by Koch [2] of Chicago and Siler and Reid [3] of Cincinnati, advise a very meticulous cleansing of the wound with white soap and water, using soft cotton instead of a brush. All shreds of epidermis are removed and all blisters are opened. Petrolatum gauze is then placed over the injured area, over this are laid a half dozen layers of flat dry sterile gauze, over this a mass of gauze fluff, and over the fluff mechanic's waste or sea sponges to provide even pressure when elastic bandage is applied.

There are a number of good surgeons who do not think that this meticulous cleansing of the burn is necessary. At the Cocoanut Grove fire in Boston, the patients admitted to the Massachusetts General Hospital had no "débridement" or cleansing; the burns were hastily covered with gauze impregnated with boric acid ointment and dressings applied over this. The results obtained in these cases were eminently satisfactory.[4] It is well established that the unopened blister is not the infection hazard that it was once supposed to be. It may be that the best dressing for burned epithelium is the layer of plasma which has elevated the superficial layers of epidermis and formed a blister.

Therefore we are faced with the conclusion that the application of a petrolatum dressing following some type of cleansing is good treatment for burns both large and small. The next matter for consideration is whether or not there is an advantage in adding various chemical substances to the petrolatum. There is a long list of proprietary preparations composed of a petrolatum or similar base to which one to a dozen medicinal agents have been added. For example, one proprietary contraining a shotgun collection of eleven drugs was used in the treatment of 1,285 burns. The average healing time was 6.3 days and the average number of treatments was 3.8. It was not superior to any of the emollient remedies.

VITAMIN OINTMENTS

The overemphasis of vitamin therapy in other fields has been extended to the treatment of burns. A number of commercial preparations have as active ingredients the fat soluble vitamins A and D. Cod liver oil appears to have been used first in Germany by Löhr and his associates.[5] In 1939 they reported that they had treated 1,562 burns and scalds with cod liver oil and casts. There had been twenty-one deaths, or a mortality of 4.8 per cent. Only one of these deaths was due to late infection of the wound. The American literature contains a number of enthusiastic reports on the use of cod liver oil ointments in clinical cases.[6] However, these clinical reports have that common fault: there were no controls. Brush and Lam [7] found that commercial vitamins A and D ointment did not significantly affect the healing time of experimental cutaneous wounds in the guinea pig.

1. Taylor, Frederick: The Misuse of Tannic Acid, J. A. M. A. **106:** 1144-1146 (April 4) 1936. Hirshfeld, J. W.; Pilling, M. A., and Maun, M. E.: A Comparison of the Effects of Tanning Agents and of Vaseline Gauze on Fresh Wounds of Man, Surg., Gynec. & Obst. **76:** 556-561 (May) 1943. Cannon, Bradford, and Cope, Oliver: Rate of Epithelial Regeneration: A Clinical Method of Measurement and the Effect of Various Agents Recommended in the Treatment of Burns, Ann. Surg. **117:** 85-92 (Jan.) 1943.

2. Allen, H. S., and Koch, S. L.: The Treatment of Patients with Severe Burns, Surg., Gynec. & Obst. **74:** 914-924 (May) 1942.

3. Siler V. E., and Reid, M. R.: Clinical and Experimental Studies with the Koch Method of Treatment of Heat Burns, Ann. Surg. **115:** 1106-1117 (June) 1942.

4. Faxon, N. W., and Churchill, E. D.: The Cocoanut Grove Disaster in Boston: A Preliminary Account, J. A. M. A. **120:** 1385-1388 (Dec. 26) 1942.

5. Löhr, W., and Zacher, K.: Zur Klinik und Pathologie von Verbrennungen 2. und 3. Grades, Zentralbl. f. Chir. **66:** 5-24 (Jan.) 1939.

6. Hardin, P. C.: Cod Liver Oil Therapy of Wounds and Burns, South. Surgeon **10:** 301-338 (May) 1941. Aldrich, R. H.: Cod Liver Oil Ointment in Surgery, Indust. Med. **11:** 153-157 (April) 1942.

7. Brush, B. E., and Lam, C. R.: The Effect of the Topical Application of Several Substances on the Healing of Experimental Cutaneous Wounds, Surgery **12:** 355-363 (Sept.) 1942.

In this statistical study of minor burns "cod liver oil" ointment was used in 25 cases, with an average healing time of 3.1 days. A commercial vitamins A and D ointment was used in 41 cases with an average healing time of 3.2 days. It should be remembered that the healing time of 32 cases treated with plain petrolatum was only 2 days.

FOILLE

Foille is a proprietary preparation described by the manufacturers as "a stabilized water-in-oil emulsion accomplished through processing several drugs of well known therapeutic value in a vegetable oil base. Chemical action effects combination of certain elements and at the completion of the processing the active ingredients may be stated as follows: alcohol, benzocaine, oxyquinoline base, phenol, calcium soap, calcium iodide, potassium iodide, and calcium thiosulfate." In this study Foille was used in 403 cases, with an average healing time of 5.9 days and an average of 5.3 treatments per case. This is no better (and probably no worse) than any of the other bland ointments.

SULFONAMIDE OINTMENTS

A number of ointments are available which contain one or more of the sulfonamide drugs. Those containing sulfathiazole and those containing sulfadiazine are more commonly used. A 20 per cent sulfathiazole ointment has been recommended by Dragstedt and his co-workers [8] at the University of Chicago. A 5 per cent sulfadiazine ointment was used by Pickrell [9] at the Johns Hopkins Hospital. Biram [10] at the Colt's Patent Fire Arms Manufacturing Company treated 1,503 burns by dusting with sulfathiazole and putting on "intracaine" ointment. Only 2 patients lost time and there were no scars of consequence.

In this series the sulfonamide drugs combined in ointments were used in the treatment of 299 cases with an average healing time of 4.1 days. There is no evidence from this study or in other studies of major burns that the use of local sulfonamides is of value in the prevention of infection.

SUMMARY AND CONCLUSIONS

1. An unreasonable number of different preparations are being used for the treatment of minor burns in industrial plants.

2. Regardless of what is put on the average minor industrial burn, it is apt to be healed in less than a week.

3. We recommend the following treatment for minor industrial burns:

(*a*) Wash the area with white soap and water.

(*b*) Do not break blisters or otherwise "debride" the wound.

(*c*) Cover with fine mesh gauze impregnated with petrolatum or 5 per cent boric acid ointment.

(*d*) Apply a firm dressing over this, bulky enough to keep dirt away from the injury but not too large to keep the man off his job.

Henry Ford Hospital.

8. Allen, J. C.; Owens, F. M.; Evans, B. H., and Dragstedt, L. R.: Sulfathiazole Ointment in the Treatment of Burns, Arch. Surg. **44**: 819-828 (May) 1942.

9. Pickrell, K. L.: A New Treatment for Burns, Bull. Johns Hopkins Hosp. **69**: 217-221 (Aug.) 1941.

10. Biram, J. H.: Minor and Medium Burns: Treatment with Sulfathiazole, Indust. Med. **11**: 462-465 (Oct.) 1942.

NUTRITIONAL REHABILITATION OF ONE HUNDRED SELECTED WORKERS FOR INDUSTRY

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The present study might well be said to have begun in 1930, when I realized that persons with deficiency diseases were unbelievably weak and listless. The first six years were spent in the careful study of 278 patients in Ohio, selected because they had lesions typical of pellagra, beriberi or scurvy.[1] In 146 of these patients the nutritional deficiencies were secondary to organic diseases which interfered with the proper ingestion, absorption or utilization of a good diet; in 115 patients they followed chronic alcoholic addiction which interfered with the ingestion of an adequate diet; in the other 17 patients they were of the endemic type which follows the habitual consumption of a diet poor in essential nutrients. All the 278 patients were severely ill and were admitted to the hospital for careful clinical study. Invaluable aid in carrying out these studies was given from time to time by Drs. A. B. Chinn, Warren Payne, A. S. Dowling, H. F. deWolf, John Ambler and W. Clark Cooper. In these studies our efforts were directed particularly toward determining in each patient the predisposing and precipitating factors concerned in the development of the disease and the individual response to treatment. After the patients were discharged from the hospital, our frequent visits to their homes and their visits to the clinic revealed that in each instance the gain in strength had been spectacular. Many of them had returned to work and were extremely grateful for having better health. The 17 patients in the endemic group offered a special challenge in that they were able to obtain work and wanted to know ways of remaining in good health so that they could continue this work. The response of these 17 patients to treatment suggested to us that we seek an agricultural and industrial area in which deficiency diseases were endemic. Accordingly, when we were given an opportunity to go to such an area in Alabama in 1936 we accepted. It seemed to us that the first thing to be settled was whether or not the pellagra we had been treating in the North was the same disease that was so common in the South. This we did by applying the methods of treatment we had used in our cases in Ohio to 50 cases of endemic pellagra in and around Birmingham, Ala.[2] Our results were as successful as those we had obtained in Ohio, thus indicating that the response to therapy in endemic nutritional deficiencies was the same in the North as in the South. Our next problem was to test our original hypothesis, which was that persons debilitated by nutritional deficiencies can be rehabilitated so that they can return to work, provide a good diet for themselves and family, and thus rehabilitate not only themselves but perhaps other members of the family.

University of Cincinnati Studies in Nutrition at the Hillman Hospital, Birmingham, Ala. From the Department of Internal Medicine, University of Cincinnati.

The tremendously heavy expenses of the general nutrition study have been borne by grants from a number of philanthropic persons, foundations and commercial concerns, without which this study could not have been done. The necessary expense of frequent observations of these patients in their homes and in the clinic over a long period of time has been defrayed by grants from the John and Mary R. Markle Foundation and Parke, Davis and Company.

1. Bean, William B.; Spies, Tom D., and Blankenhorn, M. A.: Unpublished observations.

2. Spies, Tom D.; Chinn, Austin B., and McLester, James B.: Severe Endemic Pellagra, J. A. M. A. **108**: 853 (March 13) 1937.

My purpose in this communication is to call attention to the fact that persons debilitated solely by nutritional deficiencies gain strength promptly following specific nutritive therapy. Certainly it should not be inferred that nutritive therapy is a panacea for all weak, listless but willing workers. I realize that persons who do not have nutritional deficiencies will not be benefited by such treatment. As will be seen, however, the very nature of the present study was such that I could rigidly select patients who could be fitted for work in industry because they were debilitated solely by nutritional deficiencies. In every instance their health was restored and they were able to return to work. The study is being continued but, because of the present great need for manpower, I deemed the results thus far worthy of publication.

MATERIAL AND METHODS

Indigent persons were referred to the Nutrition Clinic from the emergency ward and the outpatient department of the Hillman Hospital, from private doctors in Birmingham and nearby communities, or by other patients. In the latter group were a number of persons who had symptoms which they considered similar to those of patients already under our care. To us it was interesting that, in a local community in which our treatment of a person with some particular symptom had been followed by spectacular improvement, other persons in the community with similar symptoms flocked to us; for example, following the relief of pellagrous psychosis in a patient, many persons with mental symptoms were brought to us from miles around. We then had to decide whether or not the mental symptoms of these persons could be explained on the basis of nutritional deficiencies and, if they could not, we had to make arrangements for them to be treated elsewhere. Similarly, when the treatment of persons with ulceration of the cornea due to riboflavin deficiency was followed by great improvement, persons with various ocular symptoms heard about it and came seeking relief.

In the first month we thought in terms of the individual rather than of the family, with the result that we probably missed a certain number of patients in the various families. We soon learned, however, that when we made a diagnosis of nutritive failure in one person it was desirable to study the family as a group. This proved to be logical in view of the fact that they all ate from the same table. From the afflicted family we selected a potential worker between the ages of 15 and 60 and applied the criteria for the present investigation. From several thousand persons with deficiency diseases we made a very rigid selection of cases for this study.

In initiating the rehabilitation of these patients, we obtained all the available information about the person as well as his disease. In assembling such information, no mere outline sufficed in all details for every patient. Nevertheless, certain forms which we used were helpful. These forms, along with the ones used for the mixed symptom complex, are described in a recent publication.[3]

By long experience we learned that the very essence of successful therapy is early and accurate diagnosis and that the diagnosis can best be made by a conservative interpretation of all the data secured from a dietary survey, special laboratory determinations, a complete medical history and a physical examination. When we first saw a person with the idea of selecting him for this study, we obtained a dietary history from the potential patient as well as from others in the family. We questioned them carefully in regard to the amount of each food they ate daily. We made frequent visits to their homes to collect data on their actual food consumption. By comparing the foods these persons ate with those recommended for an adequate diet, we estimated approximately the adequacy of their diets. It was found that information in regard to the family income and their food resources, such as a garden, chickens and cows, was of great value in determining the adequacy of the food intake. If the income was very low and there were few or no food resources, it seemed likely that their diets had been inadequate.

From the beginning we realized that deficiency diseases tend to occur as complexes rather than as single entities. Many of the patients included in this study had presenting evidence characteristic of more than one deficiency disease. Nearly every patient gave a history of having had symptoms which, for a number of years, waxed and waned with the seasons and in most instances became worse each year. The attack which brought them to the hospital at this time was more severe than that of previous years. Many of them said that they had not gone to a physician because they realized that they had pellagra and felt that it was a disgrace. When their vague early symptoms began, some of them had gone to a physician, who in many instances made a diagnosis of hysteria, neurasthenia, anxiety states, functional disorders or just plain neurosis.[4]

In the final analysis a definite diagnosis of nicotinic acid deficiency (pellagra) was made only when the patient had pellagrous mucous membrane lesions or pellagrous dermatitis; the diagnosis of thiamine deficiency was made only when the patient had characteristic nutritional neuritis; we diagnosed scurvy only in the presence of scorbutic gums and hemorrhages into the skin or tissues. For the first three years we selected only persons who had characteristic pellagra, beriberi or scurvy. More recently we have included also persons with diagnostic evidence of riboflavin deficiency. The signs on which we depended for a diagnosis of riboflavin deficiency were cheilosis at the angles of the mouth or characteristic ocular lesions. It is of interest that, in 100 patients arbitrarily selected for this study, niacin deficiency was diagnosed in 56, riboflavin deficiency in 50 and nutritional peripheral neuritis in 24. These figures total more than 100 per cent because two or three types of deficiency were present in 25 patients. Associated with these diagnostic lesions in 100 selected patients we could list pages of other symptoms, but in every instance we found weakness, failure of mental application, nervousness and irritability. In each case we determined whether the nutritional failure was due to an inadequate diet, alcoholic addiction or organic disease which interfered with proper nutrition. After making a positive diagnosis of nutritional deficiency in a potential worker who was unable to work, we discarded for this study any one whose history even suggested predisposing factors other than an inadequate diet. When it was secondary to a chronic disease or alcoholic addiction, the patient was treated but was not included in this particular investigation.

3. Spies, Tom D.; Bradley, John; Rosenbaum, Milton, and Knott, John R.: Emotional Disturbances in Persons with Pellagra, Beriberi and Associated Deficiency States, Res. Pub. Assn. Nerv. & Ment. Dis. **22**: 122, 1943.

4. Spies, Tom D.: Diagnosis and Principles of Treatment of Dietary Deficiency Diseases, Texas State J. Med. **38**: 427 (Nov.) 1942.

From the beginning, the criteria for the selection of patients, white or black, was the same. We were impressed by the small number of Negro patients who came to us. Particularly were we impressed in view of the fact that the population of the locality in which we were working is about 50 per cent white and 50 per cent colored. Of the 100 patients selected, only 1 was a Negro.

While I have seen every patient in the clinic as well as those described here a number of times, it would have been impossible for me to care for the large number of patients treated in the clinic or hospital or to have carried out all the details of this study had it not been for the willing, intelligent cooperation of the following associates at various times through the six years: Drs. Robert E. Stone, Richard W. Vilter, William B. Bean, Luther Terry, Irvin H. Griffin, L. H. Hubbard, D. P. Hightower, Frederick A. Dowdy, T. S. Boozer, Brad Morris, Sam Jones, H. H. Henderson, Sidney T. Wright, Esther S. Gross, A. S. Turk, Gilbert F. Douglas Jr., Norris L. Brookens, Walter B. Frommeyer Jr., Daniel Perry and Robert C. Cogswell Jr. These doctors and Misses Ann Van Blaricom and Monette Springer and Mrs. Jane M. Mann, nurses, and Misses Helen M. Grant and Jean M. Grant, Mrs. Merle S. Babb and Mrs. Mabel Morey, nutritionsts, have for the most part spent their time on the hundreds of patients who have been treated and returned to work on the farm or have improved so that they could do their housework or have been accepted by the armed forces. The following consultants have seen certain of these patients and have given freely of their knowledge, time and diagnostic acumen, and to them also I am grateful: Dr. Charles D. Aring, J. P. Frostig, F. H. Lewy, H. E. Himwich, Milton Rosenbaum, John Bradley, John R. Knott, Emory D. Warner, Carl V. Moore and A. W. Mann.

TREATMENT

After selecting the patients, we immediately initiated therapy and then began the long, arduous task of eliminating all the factors which predisposed to or precipitated the nutritive breakdown.

In the beginning it was necessary to admit most of the patients to the hospital for intensive as well as persistent feeding and therapy. More recently they have been treated in the clinic and allowed to return home. Of late we have been especially gratified to see the period of convalescence greatly shortened by the application of the newer methods of treatment.

The dietary treatment of these selected persons with deficiency diseases, whether they were treated in the hospital or in the clinic, was based on the principles of nutrition applicable to persons in health. We realized that it was essential for these patients to have an adequate intake of protein, calories, water, minerals and vitamins. We realized also that in persons with deficiency diseases the nutrition of the body has suffered considerably. Accordingly the diet, although based on the principles of the normal diet, was planned so as to supply much larger than normal amounts of the essential nutrients. Each patient was given a diet which supplied at least 4,000 calories, 120 to 150 Gm. of protein and liberal amounts of minerals and vitamins. In the beginning, the type of food used and the method of administering it depended entirely on the ability of the patient to ingest and retain food. As a rule the desire for food was absent. At first it often was necessary to give small feedings at frequent intervals.[2] In the severe cases the mouth and tongue were often so sensitive that only liquid or soft foods could be given and highly seasoned or acid foods had to be avoided. As these patients improved, semisolid and solid foods were given and a greater variety of food included in the diet. In all cases in which diarrhea was present, solid foods were added as soon as possible. Whether the diet was liquid, soft or solid, every effort was made to prepare and serve it in such a way that it was most acceptable and attractive to the patient.

We never relied on food alone to relieve the vitamin deficiencies. Supplements of the nutrients in which the patient was deficient were always given. Until synthetic vitamins became available for clinical use, we depended entirely on such substances as brewers' yeast powder, liver concentrates and citrus fruit juices as supplements to the diet in the treatment of deficiencies of the water soluble vitamins. As valuable as these substances were and still are, there are times when synthetic substances are life saving.

Since vitamin deficiencies usually are multiple rather than single and since, in our experience, we have found that severe deficiencies of the water soluble vitamins are much more common than those of the fat soluble group (A and D), of late we have used a basic formula composed of a mixture of the water soluble vitamins in treating the clinical syndromes of beriberi, pellagra, riboflavin deficiency and scurvy. This formula contains 10 mg. of thiamine, 50 mg. of niacin amide, 5 mg. of riboflavin and 75 mg. of ascorbic acid. When the symptoms of one deficiency predominate, more of the vitamin specific for the predominating deficiency is added. In the case of beriberi, 10 mg. of thiamine was added daily; in riboflavin deficiency, 5 mg. of riboflavin was added twice daily; in scurvy we added 100 mg. of ascorbic acid three times a day. To the severely affected pellagrin, 150 mg. of niacin amide three times a day was given in addition to the basic formula. Two patients were so severely ill that we chose to administer these substances parenterally.

When convalescence was established in patients with B complex deficiencies who had been treated with synthetic substances, dried brewers' yeast powder or oral liver extract was given as a supplement to the diet. These substances contain significant amounts of protein and other nutrients and they are particularly valuable because they supply essential substances in which the patient is probably deficient as well as the B complex vitamins. The amounts of these substances that we gave depended on the severity of the disease. Usually we gave daily doses of from 4 to 6 ounces of dried brewers' yeast powder or oral liver extract.

OBSERVATIONS

As can be seen from the 2 representative cases, the response to immediate therapy in all cases was rapid. These cases, like the others, were selected at a time when jobs were scarce and the competition for them was great, even among skilled competent workers. Many of the persons selected volunteered the information that they could not compete with better nourished and more physically fit workmen.

The following case history is that of a young boy whose father worked in a steel mill, had a good income, owned his own home and provided an adequate diet for the family. As a result of idiosyncrasies in diet, this boy became an invalid. Following treatment, he was able to complete his education, obtain a job and become self supporting.

CASE 1.—*History.*—R. M., a 15 year old white boy, unable to walk or stand alone, was carried into the clinic of the Hillman Hospital, March 12, 1936. The family history was negative. The past history was irrelevant. From the parents and later from the boy it was learned that he was in perfect health until January 1935. At that time he began to lose his desire for food and soon began to lose weight. Since his appetite was so finicky, his mother stated that she allowed him to eat anything he wished, so he restricted his diet to desserts, candy and soft drinks. Early in March his mother noticed discoloration and roughness over his elbows and knees. These lesions persisted; he continued to lose weight and by September was so weak he could not go to school. In October he became acutely ill and was admitted to a hospital for observation. The redness of his tongue led some physicians to suggest that he might have scarlet fever. Others suggested that he might have nephritis because of the edema of his ankles. At this time he had some pain and numbness in all four extremities. After a ten day period of observation in the hospital he was discharged. A month later he began crying a great deal of the time because of the intense, persistent pains in his legs and arms. His feet burned so much that he refused to have bedclothes over them. By this time he was listless, lost interest in everything and refused to see any of his friends. Gradually he became apprehensive and dull and was no longer able to use his legs and arms. By the end of the year he could not walk or stand alone and was unable to hold a glass or feed himself. Early in February a physician told his parents that the boy had multiple sclerosis. A month later his tongue and mouth became sore again and a "rash" appeared on the elbows and legs, and new areas were involved on the forearms, nose and cheeks. The physician now said that the boy had pellagra and suggested that they take him to the Nutrition Clinic.

Nutrition History.—The boy was breast fed until he was 18 months of age; he was not given supplements of cod liver oil or orange juice. From the time he was old enough to eat solid food he preferred bread, desserts and sweets to any other foods. Prior to his illness he often ate 10 to 12 slices of white bread, 4 or 5 servings of desserts and large amounts of candy daily. Usually he drank from 5 to 6 bottles of some kind of soft drink daily. Occasionally he ate small servings of greens or tomatoes and sometimes an apple but would eat no other fruit or vegetables. He refused all meats except lean pork, which he ate once or twice in a week. He had not had milk or eggs since he was 2 or 3 years of age. As the father had regular work in the steel mill, owned his home and supplied adequate food for the children, it is fair to say that the boy's food idiosyncrasies were the reason for his not having an adequate diet. Nutrition histories of two sisters, a younger brother and the parents showed that they had always eaten adequate diets.

Physical Examination.—The boy was listless, depressed, undernourished, apprehensive and uncooperative. The tongue and buccal mucous membranes were cardinal red and swollen. Large, symmetrical "butterfly" dermal lesions of pellagra extended over the bridge of the nose and the malar surfaces of both cheeks. These areas were pruritic and dark brown with a fiery red border. The line of demarcation between the pellagrous areas and the surrounding skin was clearcut. The skin over the dorsal surfaces of the elbows and knees looked and felt like rough sand paper. It was thickened, inelastic and bronze in color except at the edges, where it was fiery red.

Neurologic Examination.—The boy was unable to walk or to move any extremity. The muscles of the hands, forearms, thighs and legs showed profound atrophy. The hands were "clawlike" in appearance; the deformity was somewhat greater in the left than in the right. The muscles of the legs and arms were weak and there was almost complete loss of power of the dorsiflexion of the lower arms, resulting in bilateral wrist drop. There was extensive atrophy of the muscles of the thighs and lower legs. He had bilateral foot drop. The biceps, triceps, patella and achilles reflexes were absent bilaterally. Babinski, Gordon and Oppenheim signs were not present, and there was no ankle clonus. The abdominal and cremasteric reflexes were present and active. There was no evident disease of any cranial nerve.

Course in the Hospital.—He was put on twenty-four hour nursing service and was under the supervision of a dietitian and a number of physicians in addition to the house and visiting staff. He was given a daily diet of 4,000 calories, rich in meat, milk and eggs, supplemented with 180 Gm. of dried brewers' yeast powder. The yeast was given in 30 gram amounts, well mixed in 200 cc. of ice cold milk. The first two days he could retain the food and yeast mixture only when they were given in very small amounts at frequent intervals, so he was fed at least every two hours day and night. By the third hospital day he had improved and his food was given in more solid form at less frequent intervals and the yeast mixture was given every four hours. His diet included daily 1 quart of milk, 4 eggs, ½ pound of lean meat, 2 servings of green vegetables and 2 servings of fruit, in addition to liberal amounts of whole grain cereal, bread, butter and cream. Although he refused to eat these foods at home and had not tasted many of them before, we insisted that he eat them. He never learned to like carrots or beets but developed a liking for all other foods. After his general sense of well-being began to improve, the redness of the buccal mucous membranes and the tongue faded rapidly and he stated that his mouth and tongue no longer burned. The erythematous borders of the skin lesions faded promptly, began desquamating and within one week had subsided except for a residual pigmentation.

For the first two days in the hospital he was so apprehensive, frightened and antagonistic that little could be done with him other than force food. On the third hospital day he began to chat with other patients and became very friendly with the doctors and nurses during the subsequent week. By this time he was able to move his legs in bed and began to use his hands to help feed himself. Soon afterward he was allowed in a wheel chair and was able to push himself around and started playing checkers with other patients. When he was discharged on his twelfth hospital day he seemed well on the road to recovery and had gained 6 pounds (2.7 Kg.). His mother promised faithfully to follow instructions in regard to preparing and serving his diet, and the boy agreed to eat whatever she gave him. This system worked well. Two weeks after he left the hospital he was able to stand alone and soon began walking on crutches. Two weeks later he was able to walk around the house without crutches and within six weeks was riding a bicycle. By September he had gained 18 pounds (8.2 Kg.) and decided to return to school. In 1940 he graduated from high school and went to work driving a truck for a chain grocery. In December 1942 he was given a much more responsible job with the same company driving a large transport truck over long distances. At present he works steadily, has an excellent appetite and eats the kind of food he was instructed to eat. Like the proverbial fairy story, he is married and living happily and expects soon to become a member of the armed forces.

The following representative case is that of a highly skilled workman who was on the verge of being sent to a custodial home for mental diseases as a result of nutritive failure. His illness appeared soon after the plant in which he worked closed. He subsequently stated that without special treatment he could not have improved sufficiently to secure and hold a job. He said he noticed that better nourished and more physically fit men were the first to be selected to return to work when the steel plants reopened.

CASE 2.—*History.*—K. J., a 33 year old white foundry worker in a steel mill, was brought to the Hillman Hospital by his wife on March 16, 1936. The past history was negative. The patient had been in good health until January 1936. When he was finishing his last year in high school his father, who had always had a good income, died suddenly, and in order to support his mother and two brothers the patient obtained work in a steel mill. We learned from the superintendent of the mill that he was a skilled, reliable worker, that he was exceptionally conscientious and that he soon learned to be one of the best molders in the foundry. He was made foreman of the shop in 1926, when he was only 23 years of age. At this

time he married and began making payments on a small house and ½ acre of land. Within three years three children were born, and in order to provide them with the best food possible he bought a cow and chickens and grew vegetables and fruit, much of which his wife canned for winter use. At this time the family lived comfortably and had a liberal and well balanced diet. Late in 1929 the mill began operating part time, but for more than a year he made enough money to avoid drawing on his insurance and he continued to make small payments on his house. By 1931 the mill had closed and he was out of a job. His savings dwindled until they disappeared. He sold the cow and chickens when he could no longer buy food for them. Next he sold most of the house furnishings and divided the money with his two brothers, who were also unemployed. Occasionally he obtained work in a lumber yard but earned only enough to provide a little milk for the children, scant fuel for the kitchen stove and some seeds for the garden. He worried much of the time about his wife and children and decided that in order to give them the best of what food there was he would tell them he preferred to eat grits, corn bread and syrup. He followed this self-imposed diet and gradually lost all desire for food. For many days he ate biscuits and drank coffee in an attempt to get enough energy to work in the garden. In January 1936 his wife observed that he was doing very peculiar things, such as getting up at night and pacing the floor or walking around the garden, hours at a time, talking or mumbling to himself. He was confused and in the middle of a sentence frequently forgot what he had started to say. When he went on an errand he often forgot where he had started and for what purpose. Despite the fact that he had always been devoted to his family, he became so irritable that the children were afraid of him and his wife hid them from him. Although he could not tolerate having the children near him, he refused to allow them to go to school because they did not have what he considered the proper clothing. For the first time in his life he developed such a belligerent attitude toward his neighbors and friends that they stopped visiting him. Later he refused to go out of his house for weeks at a time. Early in February he began complaining of pain and burning in his stomach, and burning and aching of his feet. The burning was so intense that he could not sleep and he sat up most of the night with his feet in a tub of water; he refused to have bedclothes over them although the house at this time was very cold. A little later he began to complain of a sore mouth and tongue, and by this time the pain in his stomach was so severe that he refused to eat anything but thin gruel made from grits and to drink an occasional cup of coffee. Soon after that his wife noticed that the skin on his hands, forearms and neck became fiery red. He thought he had something "catching" and issued orders that his wife and children must not enter his room. He lay in bed shouting to his wife that he had made a failure of his life and brought disgrace on his family, and he threatened to kill himself and them. He refused her offer to have a doctor on the basis that the doctor would poison him and probably would steal the children and give them to the neighbors. His wife became so alarmed by his actions that she went to his former employer and asked his assistance in having him committed to a custodial institution for the treatment of mental diseases. The employer called a physician, who from the skin lesions made a diagnosis of pellagra and prescribed a sedative, and the patient was brought in an ambulance to the Nutrition Clinic of the Hillman Hospital. From there he was admitted to the ward.

Physical Examination.—The patient was well developed but emaciated and appeared irritable and depressed. Large symmetrically placed erythematous pellagrous lesions extended over the dorsum of the hands, the wrists and the forearms and completely encircled the neck. The tongue and mucous membranes were swollen and reddened. The knee jerks were greatly hyperactive. The peripheral nerves of the legs were excruciatingly tender to pressure.

Treatment and Course.—He was placed under twenty-four hour nursing, dietetic and medical supervision. He was given daily a diet of 4,000 calories, rich in meat, milk and eggs, and 120 Gm. of dried brewers' yeast powder. Although he usually objected to taking food, complaining that it "scalded his tongue, burned his stomach and made his bowels move too often," by coaxing he was persuaded to eat the desired amount, even on the first hospital day. Since he could eat only a little food at one time, we fed him every hour day and night. He seemed rational at intervals during the first two days but most of the time he was having hallucinations and delusions, frequently manifested by his persistent insistence that his wife was waiting downstairs in the hospital for him to sign a pay check, despite the fact that his wife was at home and that he had not received a pay check for a long period of time. Occasionally he thought we were trying to poison him, but this idea was fleeting; a few minutes after refusing food he might take the same food without hesitancy. By the third hospital day the redness of the tongue and the oral mucous membranes had disappeared. He said that he felt fine, asked for food and volunteered that he had been "out of his head" for a long time. By this time the skin lesions were fading and by the tenth hospital day they had desquamated. The burning and aching of his feet steadily lessened, and he was discharged ten days after admission, having gained 10 pounds (4.5 Kg.) in weight. He now had an excellent appetite, was cheerful, was anxious to return home to his family and felt confident of obtaining employment. He followed the recommended diet at home and visited us in the clinic twice during the next week. The superintendent of the foundry gave him work three days a week. The patient asked our counsel as to how to provide an adequate diet for himself and his family on his new income. He followed our suggestions and remained well until February 1938, when he developed a protracted illness diagnosed by the attending physician as influenza followed by bilateral lobar pneumonia. After a stormy convalescence he gradually recovered but was very weak. During his illness he lost his appetite and 20 pounds (9 Kg.) in weight. Three weeks after the pneumonia subsided he noticed burning of the mouth and tongue, and burning and aching of the feet soon became so severe that he could not sleep. He worried constantly about his family: His wife was sure he was going "out of his head" again. He became uncooperative and was reluctant to see us or his friends. He was so depressed that he no longer cared for our counsel. His wife came to see us and we advised her to bring him to the hospital. He did not want to come, and she did not wish to urge it at this time. Two weeks later the skin on his hands, forearms and neck became fiery red. In a lucid moment he realized that his symptoms were similar to those we had treated before, so he asked his wife to get a car to bring him again to the Nutrition Clinic.

Between these two attacks of deficiency disease the science of nutrition made rapid progress. The patient remained ambulatory, coming to the Nutrition Clinic for treatment daily for the first three days, then twice a week for four weeks. For three days he was given 500 mg. of nicotinic acid daily in ten 50 mg. doses, then four 50 mg. doses daily for four weeks. His wife gave him 120 Gm. of dried brewers' yeast powder each day in tomato juice. The day after treatment was started he volunteered that he felt better again, that his head was clear and that his mouth and tongue no longer burned. The redness of the tongue and buccal mucous membranes faded within twenty-four hours. By the third day the redness of the skin lesions had decreased and on the fifth day were well on the way to desquamation and healing. At the end of two weeks he still complained of some aching of the legs and burning of the feet, and as a therapeutic test he was given an injection of saline solution, which did not relieve this pain. The next day he was given 10 mg. of thiamine intravenously and within thirty minutes had complete relief from pain. That night he slept better than he had slept for years. He was then given 10 mg. of thiamine twice daily by mouth for four weeks. Within two weeks the burning of his feet had disappeared. Once again he was instructed to eat a liberal diet, but this time he objected because of the cost. He thought he would not be able to go back to work for some time and feared that if he ate the recommended diet there would be no food for his family. He consented to follow instructions only when we told him he probably would be able to go back to work in a week if he followed directions. His former employer gave him several days' work each week, and within three months he was working

six days a week as foreman of the foundry. He continued in this job until the summer of 1941, when he was offered a responsible position in the Navy Yards on the east coast. Since this paid more than the job he had, he decided to try it for a few months. After staying two months he found he enjoyed the work and came back, sold his house and moved his family. Although we made frequent examinations of the wife and children, we never found diagnostic lesions. Nevertheless they were underweight, nervous, irritable and apprehensive. As the patient's health improved and he obtained employment, he was able to provide a better diet for himself, his wife and his children. The general health of his wife and children as well as his own improved steadily. In his last letter he stated that he had not lost a day's work in over a year and that his family were in excellent health.

These 2 patients, like most of the others in the study, have made frequent visits to the Nutrition Clinic, and we have made visits to their homes from time to time, with the result that we were able to keep them under supervision. Many of the patients still take daily supplements of yeast, yeast concentrates or synthetic vitamins. All the patients except 1 white man improved to the place where they wished to get jobs and proceeded on their own initiative to do so. The 1 white man who improved but was not interested in obtaining a job volunteered and was accepted in the Army Engineer Corps. Some idea of the type of jobs they obtained in the various industries can be seen from the accompanying table.

Distribution in Industry of One Hundred Rehabilitated Workers

Miners	25	Cotton mill workers	2
Steel mill workers	14	Painters	2
Saw mill workers	8	Casket factory workers	2
Carpenters	5	Brass factory worker	1
Shipbuilders	4	Powder plant worker	1
Airplane modification plant workers	4	Electrician	1
Department store clerks	4	Blacksmith	1
Salesmen	4	Plumber	1
Law enforcement officers	3	Apartment house manager	1
Restaurant workers	3	Boarding house owner	1
Truck drivers	2	Fishing camp owner	1
Engineers	2	Grocery store cleck	1
Contractors	2	Meat cutter	1
Mechanics	2	Merchant	1
		Road construction foreman	1

SUMMARY AND CONCLUSIONS

1. One hundred persons, debilitated solely by nutritional deficiencies to the point where they could not work, were selected and treated. In every instance the immediate response was gratifying. Persistent therapy enabled these persons to obtain work and to continue to work and earn sufficient funds to provide an adequate diet. Being grateful and anxious to cooperate, they have followed our dietary instructions with the result that there has been a slow but steady improvement in their health and, in many instances, in the health of their families.

2. The disease in case 1, which followed an idiosyncrasy in diet, is considered representative of deficiency diseases which occur among both rich and poor, anywhere, at any time. Case 2 illustrates how easily symptoms arising from faulty nutrition of the nervous system can be confused with neurotic and psychopathic states of undetermined origin.

3. The science of nutrition has advanced so rapidly that the practicing physician naturally wonders what can be counted on in his day to day practice of medicine. Certainly he will be gratified if he makes an accurate diagnosis and applies persistent therapy to a debilitated, potential worker who is held back solely because of inadequate nutrition.

Hillman Hospital.

THE PRESENT STATE OF THE ARMY'S HEALTH

BRIG. GEN. JAMES STEVENS SIMMONS
Director of the Preventive Medicine Division, Office of the Surgeon General, U. S. Army
MEDICAL CORPS, ARMY OF THE UNITED STATES

The United States Army is now faced with the largest and most complex problem of health protection that has ever confronted a military force. Aside from the few zones controlled by the enemy, our forces circle the globe. They are exposed to wide variations of weather and climate; they live under conditions ranging from the best that modern civilization can offer to the worst that exists among aboriginal savage tribes; they must be protected, not only from the diseases of our own country, but from the serious infections that have played a dominant role in retarding the progress of civilization in certain foreign lands. It is no exaggeration to say that the Army is now, or soon will be, confronted with almost every known disease.

The protection of the health of our military forces under such adverse conditions is a matter of great concern not only to the Medical Department of the Army but to the entire medical profession of this country.

In the present article I propose to take stock of the results of the Army's program of preventive medicine as indicated by the present state of the Army's health. The present excellent health record can be best appreciated when contrasted with the Army's past experience with disease.

During the century and a half of our national existence the United States Army has had a rich experience with disease in peace and in war, at home and abroad. The peacetime experience has to a large extent paralleled that of the civilian population, and the health of the peacetime army has improved along with that of the country as a whole. However, mobilization and war always introduce conditions that favor the spread of disease and render difficult the efficient application of the measures available for their control. Therefore it is important to compare our present health record with the records of previous wars.

Beginning with the American Revolution there has been a progressive improvement in the care afforded the sick and wounded. However, in each of our wars the infectious diseases have produced more disability and death than have the injuries of battle. The nature and severity of these infections have differed greatly, depending on circumstances, but prior to the twentieth century the most disabling of the wartime diseases were included in the enteric, respiratory and insect borne groups. In the Mexican War disease caused seven times as many deaths as did battle. During General Scott's campaign dysentery, typhoid, cholera, malaria and yellow fever caused losses exceeding 30 per cent of the effective strength of his forces. In the Civil War about six million Union soldiers were admitted to hospital for disease and the reported deaths were as follows: battle injuries 94,000, disease 186,000, and unknown 24,000.

During the Spanish-American War information was available about many of the micro-organisms of disease, but military hygiene and sanitation were still unde-

Second lecture in the sixth series of lectures under the John Wyckoff Lectureship, established by the Phi Delta Epsilon Fraternity, New York University College of Medicine, April 16, 1943.

veloped. Consequently we again lost seven men from disease to every one killed in battle. One fifth of all the troops developed typhoid, which caused 80 per cent of the total deaths. Malaria and other diseases were also prevalent.

When our Army entered World War I, two decades later, it was better prepared to meet the challenge of certain of the infectious diseases. Great advances had been made in bacteriology and protozoology, and military preventive medicine had become a highly developed science. Between April 1917 and December 1919, four million men were mobilized. All of these troops were vaccinated against smallpox, typhoid and paratyphoid A and B. Methods were available for the sterilization of water in the field. There were 50,000 battle deaths and only 58,000 attributable to disease. Typhoid was uncommon; but the respiratory infections were prevalent and influenza appeared in virulent pandemic form. As our forces operated mainly in temperate regions, the so-called tropical diseases were comparatively unimportant.

During the next two decades of peace the Army's health record was excellent. As shown in chart 1, the admission rates per thousand per annum reached an all time low in 1939 of 529 per thousand. As shown in chart 2, the decrease in mortality has been even more dramatic, and in 1939 the rate reached 3.1 per thousand, the lowest mortality rate experienced up to that time by the United States Army.

With this wonderful health record we entered the period of emergency that preceded the present war. At that time it was impossible to predict what diseases might arise to attack our forces. Past experience indicated clearly that this would depend on many complex factors including geographic location, climate, season, local health conditions in the areas involved and the protection afforded our troops. Therefore all of the wartime plagues were considered as potential hazards and comprehensive plans were made to combat them. These plans resulted in an extensive program of preventive medicine. This program has been developed

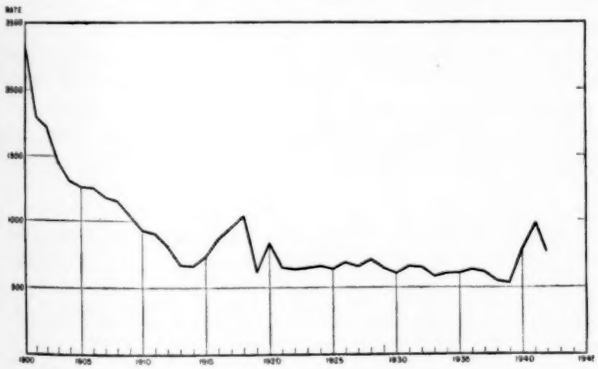

Chart 1.—Annual admission rates per thousand strength, U. S. Army, since 1900.

by the Preventive Medicine Division of the Office of the Surgeon General of the Army through its various branches, including Sanitation, Sanitary Engineering, Laboratories, Occupational Hygiene, Epidemiology, Venereal Disease Control and Medical Intelligence. The results of the program to date will be discussed under the general categories of wound infections, nutritional diseases, gastrointestinal diseases, respiratory diseases, insect borne diseases and venereal diseases.

WOUND INFECTIONS

In no field of military medicine has the effect of modern surgical and prophylactic methods made itself felt with greater force than in the management and treatment of battle casualties. The wounded soldier in this war has a much greater chance of surviving than did his predecessor in World War I. Prompt evacua-

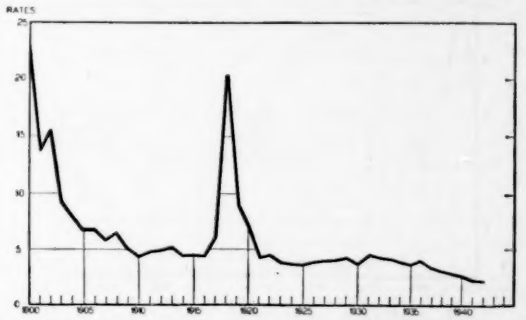

Chart 2.—Deaths, all causes, excluding battle injuries, annual rates per thousand strength, U. S. Army, since 1900.

tion of the wounded from the battle line, improved methods of transportation and the moving forward of aid stations and surgical units whenever possible make for earlier treatment during the "golden six hours" following injury.

The use of blood plasma to combat shock and of the sulfonamides to control wound infections has resulted in the saving of thousands of lives. During 1941 the Army adopted immunization with tetanus toxoid as a routine procedure for all personnel. So far we have had no tetanus among those immunized.

The problem of gas gangrene is still unsolved, although prompt use of antitoxin, the sulfonamides and improved surgical treatment have led to a pronounced decrease in deaths from this infection. There is great need for an effective prophylactic agent for use against the gas gangrene anaerobes. An intensive search for such an antigen has been under way for several years, and it is hoped that eventually we may have an effective prophylactic for use against these serious complications of battle wounds.

NUTRITIONAL DISEASES

No discussion of military preventive medicine would be complete without some consideration of the nutritional deficiency states. This subject is of growing importance since the production and distribution of food has been seriously dislocated in many parts of the world, and in certain parts of occupied Europe the population is actually faced with starvation. It seems reasonable to predict that the food situation in all countries will grow worse before it grows better.

The United States Army is the best fed force in the world and there is no reason to believe that it will not remain so. However, this applies only under stabilized conditions and when there is no interruption of the flow of supplies. There will be times, however, when troops are cut off from their supply bases and must subsist on emergency rations or, lacking these, on what food they can glean from the countryside.

During the last three years the Army ration has been a subject of intensive study. In 1940 an expert on nutrition was placed on the staff of the Surgeon General, and well trained nutrition officers are now assigned to

duty with every large command in order to maintain a close check on the quantity and quality of the soldier's food.

Various types of field rations have been developed for different special uses. Field ration A is the ordinary ration used in the training camps and elsewhere when possible. It contains a maximum of fresh foods. Field

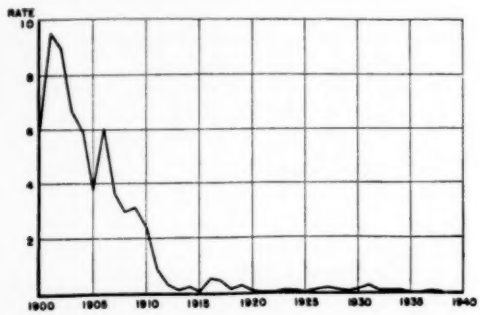

Chart 3.—Typhoid and paratyphoid, annual rates per thousand strength, white enlisted men in U. S. Army since 1900. Typhoid vaccination was voluntary in 1909, was compulsory a portion of 1910 and has been compulsory since 1911. (U. S. Army Medical Museum neg. No. 70877.)

ration B consists of foods that do not require refrigeration, such as canned fruits and vegetables, canned or preserved meats, potatoes, onions, flour and so forth. This ration is supplied for troops on maneuvers and to expeditionary forces. It should be supplemented by local supplies of fresh foods when available. For convenience the B ration is packed in cartons containing sufficient food for the daily use of either 5 or 10 individuals.

Field ration C is concentrated and requires no cooking. It has been devised for use in places where the transportation and preparation of food are difficult. It consists of three cans containing hash, meat and beans and meat stew respectively, also three cans each containing biscuits, a beverage, sugar and candy.

For special occasions where light weight and lack of bulk are necessary, a pocket ration known as field ration K is available. This consists of concentrated foods sufficient for three meals, packed in cartons. It contains meat or cheese, biscuits, candy, sugar, cigarets, chewing gum and a dehydrated beverage.

These diets are supplemented by vitamin concentrates when necessary. In this manner we have succeeded in avoiding serious outbreaks of scurvy, beriberi, pellagra or other well defined deficiency diseases. There are, however, reports of mild deficiency states in front line troops who have been on short rations for extended periods of time. Such individuals are quickly restored to health and vigor by adequate rest and food.

GASTROINTESTINAL INFECTIONS

Typhoid, the paratyphoid fevers, the dysenteries and diarrheas, and in some areas cholera have long been the scourge of armies. In 1905 the Japanese were able to effect a reasonable control over these infections during the Russo-Japanese War. Compulsory vaccination against typhoid was introduced into the United States Army in 1911, and a triple typhoid vaccine was used during the first world war. In that conflict typhoid, which had caused disgracefully high rates during the Spanish-American War, was unimportant. There were only 1,386 cases and 215 deaths among our troops. The paratyphoid fevers caused 175 cases and 11 deaths. During the subsequent twenty years of peace these infections were practically eliminated from the Army.

It is a pleasure to be able to report that during the recent period of mobilization and war there has been no increase in the typhoid-paratyphoid rates in spite of the insanitary conditions to which the troops are frequently exposed. Undoubtedly this good showing has been due in part to the effective methods used for providing troops with safe food and water. However, a most important factor has been the program of universal immunization with a triple typhoid vaccine. This vaccine contains killed typhoid bacilli and the paratyphoid bacilli A and B. It is given on induction in three doses of 0.5, 1 and 1 cc. at intervals of one week and is repeated before the soldier goes to a theater of operations.

When one considers the dysenteries and the infectious diarrheas the picture is not quite so encouraging. There have been, and there will probably continue to be, sharp but small and well localized outbreaks of such infections.

These diseases are most prevalent during the warm summer months and among troops living in the field. Here the trinity of feces, fingers and flies easily accomplishes its unholy work. As a rule the prevalence of enteric diseases among troops is an index of the sanitary and hygienic discipline of the organizations concerned. Obviously, military situations may arise that will make the maintenance of a satisfactory state of sanitation extremely difficult; but the educational program of the Medical Department is resulting in an increasing appreciation by both line officers and men of the importance of adhering strictly to the principles of sanitation. It is believed that eventually the Army as a whole will look on the occurrence of such filth diseases in a command as a reflection on the efficiency of the commanding officer.

During World War I there were 87,774 cases of dysentery and diarrhea among American troops, and the average time lost from duty was approximately eleven days for each case. The admission rate for 1917-1918 was 18.45 and that for the ten year period from 1930 to 1940 was 1.8. The rate for the last two years has been 10.19. Thus the incidence of the diarrheal diseases since January 1941 has been less than during World War I but greater than during the last ten years of peace. If we are to reduce this incidence further, still greater emphasis must be placed on the training of all military personnel in sanitation and on the supervision and inspection required to see that sanitary matters are handled efficiently. Where this is done the diarrheal diseases will not seriously interfere with military operations.

TABLE 1.—*Pathogenic Organisms Responsible for Outbreaks*

Flexner dysentery bacilli	48 outbreaks
Staphylococci	31 outbreaks
Salmonella organisms	12 outbreaks
Miscellaneous	6 outbreaks
Shiga dysentery bacilli (3 cases)	1 outbreak

Since April 1942 the Preventive Medicine Division of the Office of the Surgeon General has collected data on 320 outbreaks of diarrhea, of which 255 occurred at home and 73 abroad. These outbreaks, which affected groups of soldiers ranging in size from a squad to a division, averaged 75 cases per outbreak, making a rough total of 24,600 cases during the period. In 169 of the outbreaks laboratory studies were made, and 98 outbreaks were reported as due to the pathogenic organisms listed in table 1.

Much excellent laboratory and epidemiologic research has been carried out by Army laboratories and by the Board for the Investigation of Epidemics. Fortunately, certain of the newer sulfonamide drugs including sulfaguanidine, succinylsulfathiazole and sulfadiazine are being used effectively in the treatment of the diarrheal diseases. However, such infections still constitute one of the most formidable hazards to be encountered by American troops, ranking second only to malaria in certain tropical theaters. Those of you who join the armed forces should see that there is developed within your organization such a high state of sanitation and sanitary discipline that you will never experience the embarrassment of having to apologize for an epidemic of intestinal disease.

RESPIRATORY DISEASE

The most important diseases encountered during the last war were those transmitted through the respiratory tract discharges by personal contact. Certain of these,

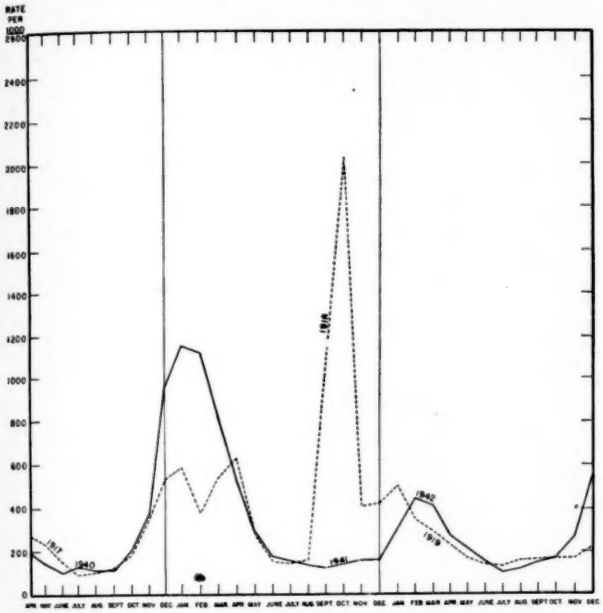

Chart 4.—Incidence of respiratory diseases, rate per thousand per annum, U. S. Army in the continental United States, April 1917 to December 1919 and from April 1940 to December 1942. (U. S. Army Medical Museum neg. No. 74097.)

including influenza, the common cold, the pneumonias, diphtheria, scarlet fever, measles, mumps and meningitis, occurred in epidemic form.

Three of the respiratory tract diseases, namely influenza, bronchitis and pneumonia, were responsible for over a million admissions to hospital and 44,000 deaths. This represented one third of the total admissions for disease and 80 per cent of the disease deaths. Influenza alone caused about 800,000 admissions and 24,600 deaths. Our tragic experience with the pandemic of influenza in the last war left an indelible impression on the older generation of physicians and medical officers. In spite of the increased knowledge of the etiology of this disease and the possession of new but untried weapons for combating it (vaccines and the sulfonamides), influenza is still regarded as potentially one of the most formidable of the disease enemies of the soldier.

The present situation as regards respiratory diseases in the Army is indicated by the graphs in charts 4, 5 and 6 comparing the present morbidity and mortality rates with those for the last war and with those for the decade of peace which preceded the present war.

In chart 4 there is shown the monthly admission rates for respiratory diseases among troops in the United States from April 1917 to December 1919; also the

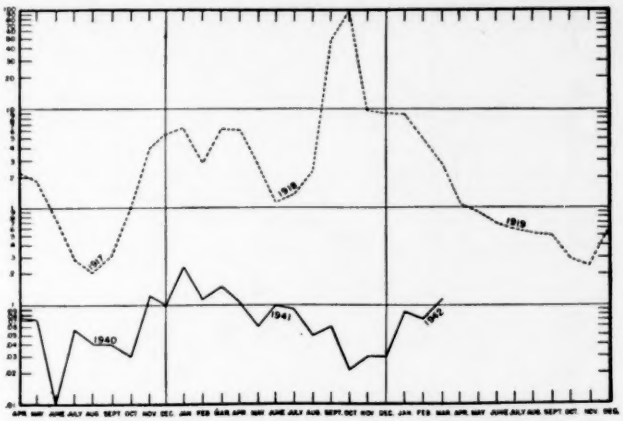

Chart 5.—Deaths, respiratory diseases, rate per thousand per annum, U. S. Army in the continental United States, April 1917 to December 1919 and after April 1940. (U. S. Army Medical Museum neg. No. 74097.)

corresponding rates from April 1940 to December 1942. Except for the peak in the fall of 1918, caused by the influenza pandemic, the two curves are somewhat similar, but, in general, conditions have been better during the present war. An outbreak of mild influenza which occurred in the early part of 1941 produced relatively high admission rates; but subsequently the curve has shown only the expected seasonal variations.

The respiratory disease death rates during corresponding periods of the two wars are strikingly different, as is shown on the semilog graph on chart 5. At only one point has the maximum death rate for the present war reached the height of the lowest rate experienced during the last war. This maximum death rate of 0.24 per thousand per annum is about one five hundredth of the maximum death rate of 100 reached at the peak of the 1918 epidemic of influenza.

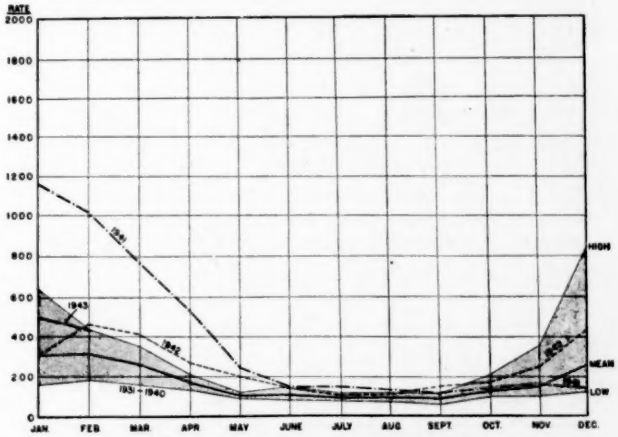

Chart 6.—Admissions for respiratory diseases in the U. S. Army. Monthly admission rates per thousand per annum since January 1941 compared with the high, low and mean of such rates during ten years of peace (1931-1940).

In chart 6 monthly admission rates for respiratory diseases during the present war are compared with the high, low and mean admission rates by months for the ten year peacetime period from 1931 to 1940. During the spring of 1941 the widespread epidemic of mild

influenza raised the hospital admission rates to a rather high level. However, the mortality rate for the period was extremely low, about 0.2 per thousand per annum. The year 1942 was a healthful one, with a lower incidence of respiratory diseases than in either of the two

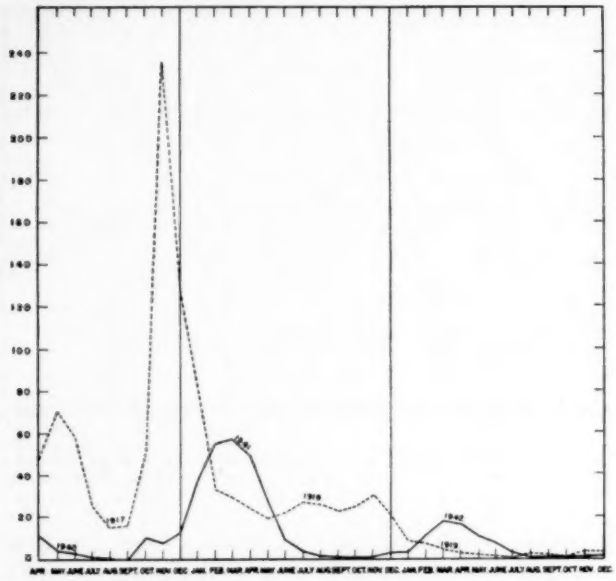

Chart 7.—Incidence of measles, rate per thousand per annum, U. S. Army in the continental United States, April 1917 to December 1919 and from April 1940 to December 1942.

preceding years. During the winter just ended there was a fairly abrupt rise in the admission rates beginning early in the season; but the threat of an epidemic was not fulfilled, the highest rate being 512 per thousand per annum in January 1943. Since January the rates have been steadily declining, and no further difficulty from the respiratory infections is anticipated before next winter.

The consistently low death rates for respiratory diseases during the present war reflect the excellent medical care given to troops. They also indicate the soundness of the Army's policy of prompt and early hospitalization for all acute respiratory and communicable diseases.

Measles and Mumps.—Two important military diseases which were epidemic during the last war are measles and mumps. Measles was very troublesome;

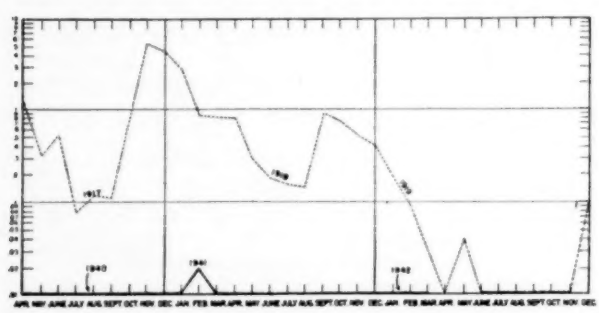

Chart 8.—Deaths, measles, rate per thousand per annum, U. S. Army in the continental United States, April 1917 to December 1919 and from April 1940 to December 1942.

it caused almost 100,000 cases, and the case fatality rate was unusually high. Mumps was numerically less important, but because of the long hospitalization required for the individual case this disease ranked third as a cause of lost time.

During the present war these diseases have been comparatively unimportant. The present rates are compared with those for World War I in charts 7, 8 and 9.

As shown in charts 7 and 8, there were two severe measles epidemics during World War I, one in the fall of 1917 and the other in the fall of 1918. The disease was of a severe type and most of the deaths were due to secondary streptococcic bronchopneumonia. During the past three years the mortality from measles has been unimportant.

In chart 9 the admission rates for mumps during the present war are compared with those for World War I. The mortality has been negligible.

Scarlet Fever.—During the present mobilization and war, scarlet fever and related streptococcic diseases have been relatively unimportant compared with the experience of the last war. It has been the policy to consider that the presence of a rash is only one manifestation of streptococcic pharyngitis. Control efforts are directed therefore toward the isolation of all individuals with

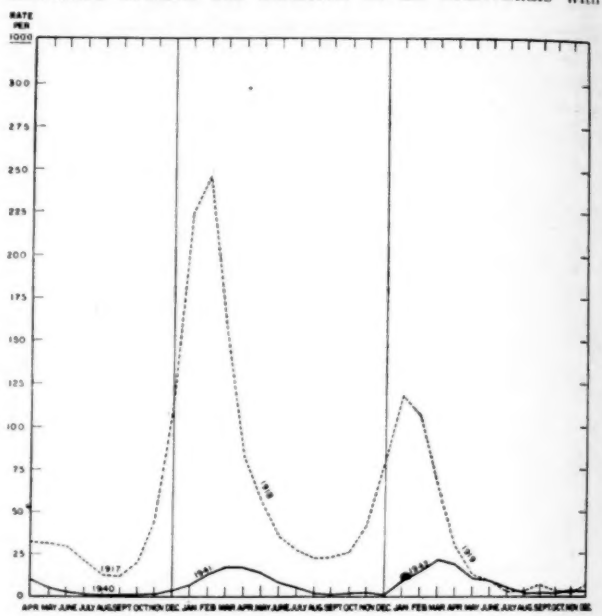

Chart 9.—Incidence of mumps, rate per thousand per annum, U. S. Army in the continental United States, April 1917 to December 1919 and from April 1940 to December 1942.

streptococcic infection of the upper respiratory tract. During the past three winters, infections of this type have constituted a serious problem at relatively few stations.

Diphtheria.—During the present war only a few sporadic cases of diphtheria have occurred in the United States Army. The reason is not known.

Smallpox.—The Army's experience with smallpox is indicated graphically in chart 10. Since 1940 only an occasional case has occurred, giving a rate too small to record graphically. Strict attention to the vaccination and revaccination of all military personnel has produced this excellent record.

Primary Atypical Pneumonia.—Primary atypical pneumonia of unknown etiology was first reported by this name in the Army in 1942. In March the Surgeon General issued a circular letter calling attention to the frequency of the condition and directing the use of this terminology in official reports. During the first month only 131 cases were reported. The frequency of reports increased gradually but steadily during the summer; in

September the increase became greater and it progressed to a peak in the second week of January 1943, when a total of 908 cases were reported. Since that time there has been some decline.

The total pneumonia incidence reached its highest rate in the week ended January 9, and 43 per cent of the cases were reported as atypical pneumonia.

The mortality from this form of pneumonia is low and complications are few. However, it contributes heavily to the noneffective rates, as the lesions demonstrable by x-ray examination may persist for several weeks during which the soldier must be hospitalized.

Meningitis.—In this war the Army has experienced an outbreak of meningitis which, though milder, resembles to some extent the one which occurred during the first world war. The outbreak during the former war reached a sharp peak of 4.5 cases per thousand per annum in January 1918 and fell almost as abruptly as it had risen. The present outbreak has been equally abrupt in its rise, reaching at its peak about 2.7. The increase in prevalence during the present war has been maintained for a longer period than in World War I. In the civilian population the incidence has also been higher than usual and according to *Public Health Reports* this is a fivefold increase over the previous five year average.

A study of the incidence of meningitis in various camps has shown a wide variety of patterns. The outbreak began at approximately the same time in stations in all parts of the country. In some stations the disease developed gradually, in others it increased abruptly, the incidence curves rising to sharp peaks. Certain of the large stations with a considerable turnover of men have suffered more than others.

When one considers the mortality from meningitis there is no longer any similarity with previous experience. During World War I the case fatality rate for troops in this country was 34 per cent. At present the fatality is between 3 and 5 per cent. Complications and disabling sequelae have not been common. This remarkable reduction appears to be due chiefly to the

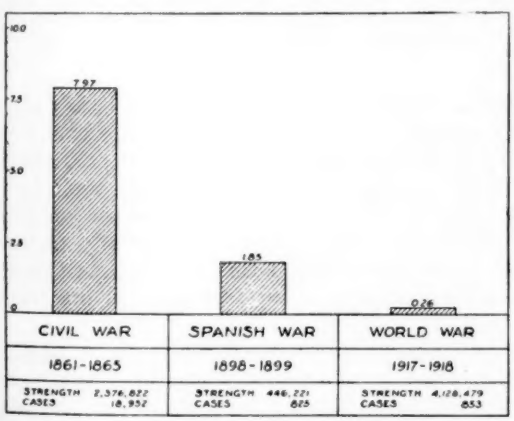

Chart 10.—Smallpox in the U. S. Army during the Civil, Spanish and World wars. Admission rates per thousand men. (U. S. Army Medical Museum neg. No. 70956.)

use of the sulfonamides, for there is little evidence that meningitis is any milder than it used to be. As usual the recent outbreak of meningitis was characterized by the absence of any demonstrable connection between cases. Groups of cases have seldom occurred in the same company, the infections being distributed sporadically in different organizations. There is need for a fundamental restudy of the epidemiology of this disease.

INSECT BORNE DISEASES

The insect borne diseases have probably been just as important as the intestinal or respiratory infections in shaping the twisted course of human history. Since the earliest times, armies operating in countries afflicted with endemic malaria, yellow fever, typhus fever or plague have been attacked and crippled by epidemics of these diseases.

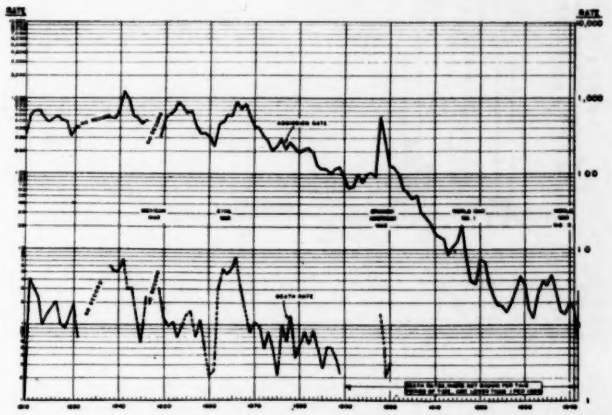

Chart 11.—Malaria in the U. S. Army. Annual admission and death rates per thousand white enlisted men in the continental United States, 1819-1941.

American experience during the first world war failed to indicate the potential military significance of the insect borne diseases. The admission rate for malarial fevers was 3.7 per thousand with practically no deaths; there were only 2 cases of typhus and none of either yellow fever or plague. Unfortunately this excellent showing cannot be ascribed to the control methods used, as it was due largely to chance and the absence of such diseases from the regions occupied.

In the present war we are not so fortunate. To date all of our serious fighting has been done in tropical or subtropical countries where insect borne diseases abound. American troops are now exposed to malaria, dengue, typhus, yellow fever and to a lesser extent to plague, trypanosomiasis, relapsing fever and filiariasis. No authentic reports have been received of cases of yellow fever, plague, trypanosomiasis or relapsing fever. A few cases of endemic typhus occur in our Southern camps each year, but they are unimportant, as local conditions do not favor the spread of murine or flea borne typhus. The epidemic or louse borne typhus of the Old World has steadily increased among the native populations of North Africa, the Near and Middle East and elsewhere since the outbreak of hostilities. Our troops are in certain of these areas, but we feel that they will escape this scourge so long as sanitary discipline and cleanliness can be maintained. We now possess superior methods for delousing both clothes and and men, and all troops sent to danger zones are vaccinated and revaccinated with an improved typhus vaccine. Vaccination against yellow fever is also required for all troops traveling through or stationed in the endemic yellow fever areas of South America and Africa. Also troops exposed to serious threat of infection with plague will be given an improved plague vaccine.

Malaria.—This is the most widespread and the most dangerous disease to which our troops are exposed. It is present throughout the tropics and subtropics of the entire world, and each year it causes more disability and deaths in native population than any other infection. The Army has established an enviable record in its peacetime control of malaria among troops living in

permanent stations, even in our tropical possessions. By the execution of an extensive mosquito control campaign it has been possible to maintain this good record in the United States. In 1941 the Army's mosquito control program in this country cost about 2 million dollars and the malaria admission rate was 1.8 per

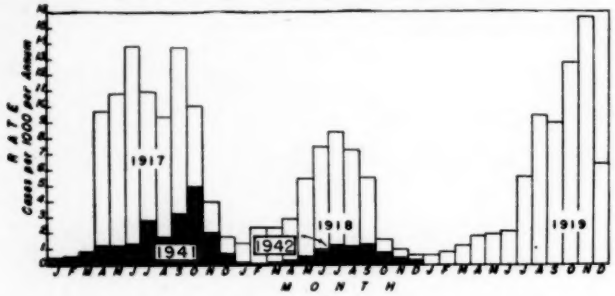

Chart 12.—Monthly malaria rates, U. S. Army, continental United States since 1941 as compared with 1917, 1918 and 1919. Total admissions per month per annum. Rates for 1942 are provisional, based on weekly statistical reports. Surgeon General's Office, Division of Preventive Medicine.

thousand. In 1942 the cost was over 3 million dollars and the malaria rate was only 0.6 per thousand. This was the lowest rate ever recorded for the Army. This campaign was supplemented by the extramilitary mosquito work of the U. S. Public Health Service. The results are indicated in chart 12.

We cannot hope for similar results among troops fighting in active tropical theaters, for in such places permanent mosquito control measures cannot be carried out. Unfortunately there is no vaccine against malaria. Either quinine or atabrine may be used as prophylactics under certain conditions in the field. However, these drugs are not real prophylactics as they do not prevent infection but simply delay the appearance of clinical symptoms during their use. Therefore the field control of malaria must be based primarily on sanitary precautions which protect individual soldiers against infected mosquitoes. For this purpose we now possess two excellent new weapons. One is a highly effective

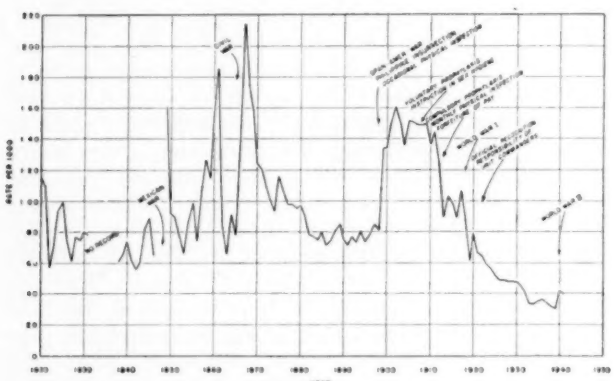

Chart 13.—Venereal disease, United States Army, since 1820. Annual rates per thousand strength.

repellent which, after application to the skin, keeps mosquitoes away for hours. The other is a special aerosol spray which is used for the destruction of adult mosquitoes in dwellings.

One of the greatest medical contributions that could be made to this country at present would be the discovery of a really effective agent for the prevention of malaria in the field. An intensive research program directed toward finding such an agent has been under way for several years, and promising drugs are now undergoing field trial.

VENEREAL DISEASES

The mass hysteria that affects men and women during periods of war usually leads to an increase in venereal infections not only in the military but also in the civil population. In chart 13 there is shown the incidence curve for venereal diseases in the United States Army for more than a century. This is the most extensive record of venereal diseases available in this country. It will be noted that these diseases increased during each of our previous wars.

As indicated in the chart, voluntary prophylaxis and instruction in sex hygiene were introduced in 1909, compulsory prophylaxis and forfeiture of pay in 1912, and official recognition of the responsibility of the unit commander for venereal infections in 1922. Not shown are the abolition of compulsory prophylaxis in 1939 and the greater emphasis now placed on the education of troops and the elimination of unwholesome conditions in the vicinity of army camps and stations.

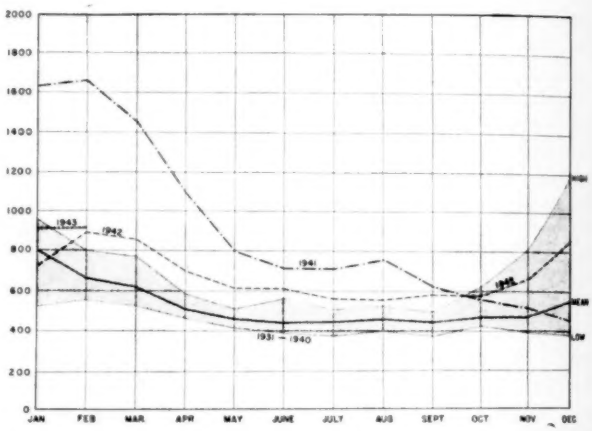

Chart 14.—Admissions for disease in the U. S. Army. Monthly admission rates per thousand per annum since January 1941 compared with the high, low and mean of such rates during ten years of peace (1931-1940). Preventive Medicine Division, Office of the Surgeon General.

When mobilization began in 1940 it was expected, because of past experience, that the Army would again experience an increase in venereal diseases. Although more effective control measures had been applied to the civil population during the preceding decade and knowledge concerning these diseases had greatly improved, no one with experience in this field believed that the Army could escape a definite increase in the venereal disease rates.

The mobilization for the present war was accompanied by an increase in venereal diseases, but this increase was insignificant compared with the past. The annual rates for 1940, 1941 and 1942 were 42.5, 40.5 and 37.7 respectively. Not all of the recent slight increase in rates has represented an increase of venereal diseases within the Army. From one fourth to one third of the cases reported have been acquired before the soldier dons his uniform. If one eliminates the cases acquired prior to entry into the Army, the rate for the past four months is only 29 per thousand per annum. Thus it appears that the rate of infection after entry into active service compares favorably with that which existed prior to the beginning of mobilization. It is of interest to

note that in no month of the current war has the venereal rate for troops in this country been as high, or anywhere near as high, as the lowest monthly rate for the last war. This should be a source of comfort to those who have been misinformed as to the incidence of venereal disease among the troops. There are reasons for believing that the rate of infection is not substantially different from that which prevails among comparable civilian groups.

Many factors have doubtless contributed to this record of success, though it is impossible to evaluate their relative importance. Specially trained venereal disease control officers have been placed in key positions in this country and overseas. Close collaboration has been developed with civil authorities in the repression of prostitution and the discovery and treatment of sources of infection. Better drugs have improved treatment and shortened the time lost from active duty. Improved prophylactic facilities have been provided.

TABLE 2.—*Comparison of the Annual Admission Rates in Troops in the Continental United States and Overseas Theaters*

1942 Admission Rates (per Thousand per Annum)

	All Causes	Disease Only	Injuries	Respiratory Diseases	Venereal Diseases	Dysentery, Diarrhea	Malaria
Continental United States	755	664	91	227	38.7	7.15	0.6
Theaters in temperate regions							
A	819	668	152	247	6.8	4.7	....
B	810	664	146	249	3.4	1.7	1.0
C	798	689	109	207	37.0	16.9	....
D	488	408	80	94	9.7	14.9	0.67
Theaters in tropical and subtropical regions							
E	1,111	926	185	97	7.7	107.0	47.0
F	1,011	833	178	154	33.1	69.1	53.5
G	958	852	106	115	61.0	15.6	106.0
H	1,128	1,049	79	148	66.0	117.0	173.0
I	1,221	1,091	130	232	34.0	206.0	38.0

All soldiers are being instructed regarding the hazards of these diseases. Recreational facilities have been provided within the camps, and public spirited civil agencies have provided healthful entertainment in the cities. All of these factors have contributed to the production and maintenance of the present favorable venereal disease situation in the Army.

The present morbidity and mortality rates for all diseases in the United States Army in this country are indicated in charts 14, 15 and 16. In chart 14 the present monthly rates are compared with the high, low and average rates for the peacetime period from 1931 to 1940. In charts 15 and 16 the monthly morbidity and mortality rates for the present period of mobilization and war are compared with those for the comparable period during World War I. It will be noted that there is a difference in the incidence rates for the fall of 1918 and the fall of 1941. However, the contrast between the death rates is pronounced throughout the entire period and it is obvious at a glance that the mortality from disease in this war is much lower than ever before.

HEALTH CONDITIONS IN OVERSEAS THEATERS

Realizing that all of you would probably like to know more about health conditions in our overseas theaters, especially in the areas where we have been engaged with the enemy, I have prepared a table (table 2) in which

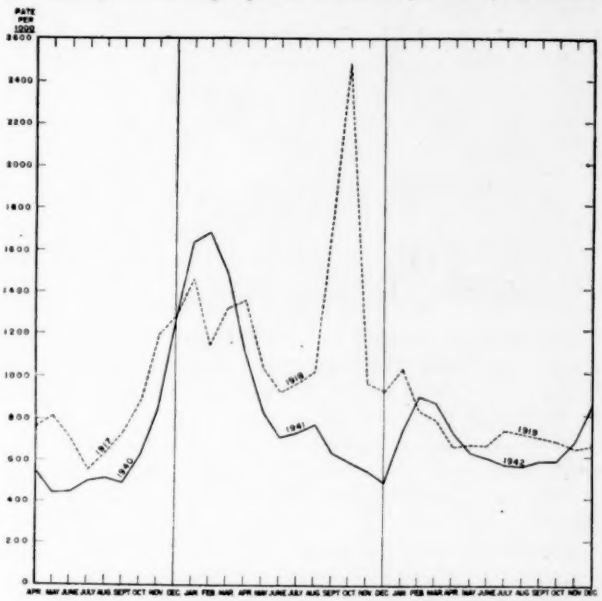

Chart 15.—Admissions, all diseases, rate per thousand per annum, U. S. Army in the continental United States, April 1917 to December 1919 and from April 1940 to December 1942. Preventive Medicine Division, Office of the Surgeon General.

the annual disease rates for various theaters are compared with the disease rates among the troops at home. For reasons of security, no strengths or names of places are indicated.

In general, it may be said that the health of the army overseas has been satisfactory. The disease rates in all temperate zone theaters compare favorably with the rates for troops in the continental United States. In some regions they are actually lower than at home. As it might be expected, the tropical theaters show a greater prevalence of malaria, diarrhea and dysentery, and the incidence of these diseases is usually highest among troops who are engaged in combat areas.

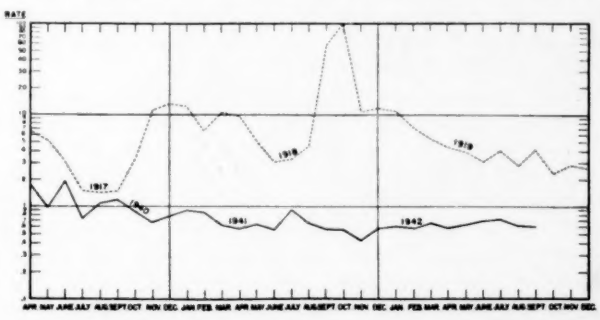

Chart 16.—Deaths, all diseases, rate per thousand per annum, U. S. Army in the continental United States, April 1917 to December 1919 and after April 1940. Preventive Medicine Division, Office of the Surgeon General.

It is hoped that this excellent health record established by the United States Army in this war will be maintained and improved. If this is done the Medical Department and the medical profession will have made their contribution to the winning of the present war.

INTENSIVE HUMAN SERUM TREATMENT OF BURN SHOCK

AND A MODIFIED FORMULA FOR CALCULATING THE AMOUNT OF INFUSION

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On the basis of recent clinical experience we have become convinced that the usual plasma or serum therapy of burn shock is inadequate and that all the formulas recommended for computation of fluid replacement understate the amounts required in extensive burns. Following burns, the body is severely depleted of fluid and protein, and a large part of the infused protein solutions is utilized to replenish the protein and water reserves. This must be taken into consideration in the estimation of the quantity of material to be infused.

We have previously reported [1] that a boy with more than two thirds of the body surface seriously burned was treated with what we then considered adequate fluid and proteins. During the first twenty-four hours 1,250 cc. of normal human serum and 2,000 cc. of 0.9 per cent saline and 5 per cent dextrose solution were infused. On the third day there developed a generalized edema which we now believe was due to the administration of inadequate amounts of colloidal and excessive amounts of crystalloid solutions during the first two days. We therefore treated the next severely burned patients with such quantities of normal human serum as were needed to maintain normal blood concentration and plasma volume, disregarding the recommended rules for calculating the amounts of fluid necessary. Following this procedure we feel that in severe burns the infusion of iso-osmotic serum in amounts greater than the original normal plasma volume of the patient sometimes may be required. In addition to studying the loss of proteins from the burned surface and its relation to the blood proteins we also compared the protein content of the blister fluid with that of plasma withdrawn at the same time, a procedure which apparently had not been used before.

The pathologic physiology of burn shock has been reviewed recently by Harkins.[2] We wish to emphasize, however, that besides leakage from capillaries in the burned area and in the tissues surrounding it there may be a considerable loss of fluid and of protein from the blood due to secondary changes in capillary permeability in other areas of the body. In animal experiments we have seen that scalding of a very small portion of the body surface is usually followed by degrees of hemoconcentration which cannot be explained by local loss of fluid into the scalded area.[3]

Supported by the Michael Reese Research Foundation.
From the Department of Surgery and of Gastro-Intestinal Research and from the Samuel Deutsch Serum Center of Michael Reese Hospital.
The help and advice of Drs. Ralph Bettman and M. L. Parker, attending physicians in the Department of Surgery, is acknowledged.

1. Necheles, Heinrich, and Levinson, S. O.: Experimental and Clinical Experience with Serum and Plasma in the Treatment of Shock: Blood Substitutes and Blood Transfusion, Springfield, Ill., Charles C Thomas, Publisher, 1942, p. 364.
2. Harkins, H. N.: The Treatment of Burns, Springfield, Ill., Charles C Thomas, Publisher, 1942.
3. Olson, W. H., and Necheles, Heinrich: Unpublished data.

Two cases of severe burns, involving 45 to 50 per cent of the body surface are reported here, not as reports of successful treatment but to demonstrate the loss of body water and of protein involved and to establish criteria for effective treatment. Three other cases will be mentioned later in the paper.

THERAPY OF EXTENSIVE BURNS

The patients were brought to the emergency room immediately after the burn, which occurred in the vicinity of the hospital. Morphine was administered. Intravenous therapy with normal human serum was started immediately while clothes were being removed, sterile sheets were applied and the burned surfaces were cleaned and debrided. Sterile petrolatum, sulfathiazole ointment, pressure bandages and warmth were applied. Oxygen by nasal catheter was given for forty-eight hours. Adrenal cortex extract was injected intravenously, mainly for maintenance of the blood chloride levels. Both patients made an uneventful recovery. At no time did blood pressure, pulse or temperature become dangerously abnormal. The administration of normal human serum was not accompanied by reactions. Although 1 patient had a short chill during one infusion, we do not feel that this was caused by the serum, because handling or exposure of the patients resulted in chills. Both patients were white men, one aged 52 weighing 71.7 Kg. and the other 27 weighing 55.4 Kg. The percentage of body surface with second degree burns was 45 in patient 1 and 50 per cent in patient 2 (estimated by Berkow's formula [4]). Total blood volume was calculated as one thirteenth of the body weight and plasma volume as 55 per cent of the blood volume. Thus patient 1 had a blood volume of 5,515 cc. and a plasma volume of 3,033 cc.; the corresponding values for patient 2 were 4,261 and 2,344 cc. Hemoglobin was determined as acid hematin with a photoelectric colorimeter, total protein and albumin by the micro-Kjeldahl method of Ma,[5] nonprotein nitrogen by direct nesslerization [6] and hematocrits with Wintrobe tubes, centrifuged for one hour at 2,500 revolutions per minute. Normal human serum containing approximately 7.5 per cent protein was infused.

OBSERVATIONS

Each patient received 1,750 cc. of normal serum during the first four hours after the burn, so that the hematocrit values at this time were at approximately normal levels. Yet during the next sixty-four hours (i. e. sixty-eight hours after the burn) both patients manifested a persistent tendency toward hemoconcentration which necessitated additional infusions. During this process of hemoconcentration blood pressures did not change appreciably and gave no reliable index of the patient's condition. Each patient required an additional 2,500 cc. of serum during this period plus 6,000 cc. of a 0.9 per cent saline, 5 per cent dextrose solution to overcome the continued tendency toward hemoconcentration. In addition, fluids were given by mouth, beginning twenty-five and twenty hours after the burn respectively.

Each patient during the first twenty hours after the burn received an amount of serum in excess of his calculated plasma volume; namely, 107 per cent in

4. Berkow, S. G.: A Method of Estimating the Extensiveness of Lesions (Burns and Scalds) Based on Surface Area Proportions, Arch. Surg. **8**: 138 (Jan., pt. 1) 1924.
5. Ma, T. S., and Zuazaga, G.: Indust. & Engin. Chem. (Anal. Ed.) **14**: 280, 1942.
6. Folin, Otto, and Denis, W.: J. Biol. Chem. **26**: 473 (Sept.) 1916.

patient 1 and 128 per cent in patient 2. During the sixty-eight hours following the burn each patient received a total of 4,250 cc. of serum; i. e., patient 1 received 140 per cent and patient 2 received 181 per cent of his calculated plasma volume as serum infusion (tables 1 and 2). In terms of calculated blood volume, patient 1 received 77 per cent and patient 2 received 100 per cent of serum intravenously.

The question arises as to what happened to the fluid and proteins infused. The disposition of the water can be explained in part by the direct effects of heat,[7] by the loss in the burned areas, by exudation from the burned surfaces (which was considerable in both patients), by loss with urine (urinary secretion was not diminished in either patient), by perspiration and by respiration. Furthermore, during the first twenty hours the patients did not take fluids by mouth. Since the daily intake of fluid necessary to replace the natural losses of water in a normal adult is approximately 3,000 cc., the patients had received about 22 to 25 per cent more than the normal fluid requirement in the first twenty hours after the burn. This surplus, however, was not sufficient to counterbalance the losses sustained. Patient 1 received a total of 19,970 cc. of fluid intravenously and by mouth during the sixty-eight hours following the burn, i. e. approximately 7,000 cc. in twenty-four hours in excess of normal requirements. There was no indication, in either of the 2 patients, that the fluid taken by mouth was not absorbed, because stools were of normal consistency. We have to assume that fluid losses had depleted the body water—intravascular and extravascular—to such a degree that the large volumes of serum, saline and dextrose solutions, plus fluid by mouth, were necessary to reestablish a normal fluid balance. All of this demonstrates the grave needs of the burned organism for isotonic fluids [8] and suggests the inadvisability of using concentrated plasma or serum, which has been found to be either inferior to iso-osmotic serum or plasma [9] or deleterious [10] in the treatment of shock in experimental animals.

A similar calculation for patient 2 shows that he received 22,540 cc. of fluid by mouth or intravenously during the sixty-eight hours following the burn, i. e. about 7,955 cc. in twenty-four hours. This is approxi-

TABLE 1.—*Course of Patient 1, Aged 52, Weight 71.7 Kg. with 45 per Cent of Body Surface Burned: Calculated Blood Volume 5,520 Cc; Plasma Volume 3,033 Cc.*

Time after burn	4 Hrs.	20 Hrs.	25 Hrs.	43 Hrs.	68 Hrs.	5 Days	9 Days	12 Days	13 Days
Blood pressure	96/50	100/70	106/70	120/90	118/86	130/80	....	....	....
Pulse	112	120	120	90	112	100	....	....	....
Red blood count, millions	....	....	....	....	....	....	4.34	4.04	....
Hemoglobin, per cent	102	102	96	100	110	....	64	43	....
Hematocrit, per cent	43.5	50.0	48.5	50	49.4	46.3	....	....	....
Total plasma protein, Gm./100 cc	7.49	7.40	6.90	7.13	7.80	6.28	6.10	....	5.2
Albumin, Gm./100 cc	4.45	4.40	4.40	4.40	4.20	3.74	4.20	....	2.80
Globulin, Gm./100 cc	3.04	3.00	2.50	2.73	3.60	2.54	1.90	....	2.40
Albumin-globulin ratio	1.46	1.47	1.76	1.61	1.17	1.47	2.21	....	1.16
Nonprotein nitrogen, mg./100 cc	44	54	67	50	75	66	40	....	....
Serum infusion, cc	1,750	1,500	500	250	250	Total 4,250			
Per cent of plasma volume	58	50	16	8	8	Total 140			
Dextrose 5% saline 0.9%, cc	0	0	1,000	5,000	0	....	....	....	....
Fluids by mouth, cc	....	....	3,450	2,250	4,020	3,660	....	....	....
Total fluids, cc	1,750	1,500	4,950	7,500	4,270	Total 19,970			
Urinary output, cc	....	....	2,910	3,300	1,620	2,190			
Adrenal cortex extract, 1 cc. intravenously	....	4 times	2 times	1 time	....	....	....	....	....

TABLE 2.—*Course of Patient 2, Aged 27, Weight 55.4 Kg., with 50 per Cent of Body Surface Burned: Calculated Blood Volume 4,261 Cc.; Plasma Volume 2,344 Cc.*

Time after burn	4 Hrs.	20 Hrs.	25 Hrs.	43 Hrs.	68 Hrs.	5 Days	9 Days	10 Days	12 Days	13 Days
Blood pressure	110/60	100/70	100/76	118/96	106/74	120/80	....	....	....	....
Pulse	110	114	103	92	102	90	....	....	....	....
Red blood count, millions	....	....	....	....	....	....	3.98	....	3.40	....
Hemoglobin, per cent	80	111	108	103	114	....	64	....	53	....
Hematocrit, per cent	42.8	54.0	53.0	52.3	51.0	44.7	....	....	....	....
Total plasma protein, Gm./100 cc	7.90	7.06	6.70	5.90	6.20	5.75	....	4.80	....	6.30
Albumin, Gm./100 cc	4.34	4.19	3.90	3.70	3.80	3.32	....	3.00	....	3.30
Globulin, Gm./100 cc	3.56	2.87	2.80	2.20	2.40	2.43	....	1.80	....	3.00
Albumin-globulin ratio	1.22	1.46	1.39	1.68	1.60	1.40	....	1.66	....	1.10
Nonprotein nitrogen, mg./100 cc	33	43	55	40	60	60	....	31	....	....
Serum infusion, cc	1,750	1,250	500	250	500	Total 4,250				
Per cent of plasma volume	75	53	22	11	22	Total 183				
Dextrose 5% saline 0.9%, cc	0	0	1,000	4,000	1,000	....	....	....	....	....
Fluids by mouth, cc	....	150	4,850	3,480	3,810	4,170	....	....	....	....
Total fluids, cc	1,750	1,400	6,350	7,730	5,310	Total 22,540 cc.				
Urinary output, cc	....	....	2,820	3,120	1,320	2,280	....	....	....	....
Adrenal cortex extract, 1 cc. intravenously	....	4 times	2 times	1 time						

7. McClure, G. S.: Evaporation of Water from Superficial Burns, Arch. Surg. **32**: 747 (May) 1936.

8. Colloidal fluids must be used until the acute shock syndrome is overcome.

9. Black, D. A. K.: Brit. M. J. **2**: 693 (Nov. 23) 1940.

10. Levinson, S. O.; Weston, R. E.; Janota, Martha, and Necheles, Heinrich: Surgery **12**: 878 (Dec.) 1942.

mately an excess of 5,000 cc. over the normal requirements for each twenty-four hours, or an excess of 14,000 cc. for sixty-eight hours.

It is not improbable that both patients would have died from the extreme depletion of circulating plasma and extravascular fluid without the massive intravenous serum therapy that they received.

The movements of blood proteins following the burn were as great as those of water. We know from the literature [11] and from our own experience with shock in the dog [12] that fluid and protein shifts can occur rapidly after infusions. The plasma proteins of both patients were at or slightly above normal levels at four hours after the burn, when the patients had received 1,750 cc. of serum. After that the levels dropped, although a 7.5 per cent protein solution (serum) was being administered. This may be due in part to the drawing into the circulation of extravascular fluid which has a lower protein content than that of the blood, and to a shift of intravascular protein out of the circulation.[13] Each patient received a total of 319 Gm. of protein in the form of serum during the first sixty-nine hours after the burn. The estimated normal total plasma protein (7.5 per cent) was 227 Gm. for patient 1 and 176 Gm. for patient 2. Thus patient 1 received 92 Gm. and patient 2 received 143 Gm. more than the calculated normal total plasma proteins. The movements of proteins out of the circulation must have been very rapid. One must assume, therefore, that following burns proteins at first are drawn into the circulation, but that when protein solutions are infused the body replaces the depleted tissue protein stores promptly and rapidly. It is important also to consider that, although both patients were on a high protein and vitamin diet after the third day, on the thirteenth day and tenth day respectively the plasma protein concentrations were only 5.2 and 4.8 per cent respectively. We wonder whether absorption or utilization of the ingested food proteins was impaired. The urines of both patients contained traces of albumin for a few days after the burn.

On the twelfth day a considerable degree of anemia was present in the patients, suggesting the desirability of administration of whole blood.[14]

STUDIES ON BLISTER FLUID

For the study of blister fluid from burns, 3 subjects were employed in whom approximately 5, 10 and 45 per cent of the body surface had been burned (table 3).

In the 2 cases the fluid was collected one-half hour after the burn, before any therapy had been instituted. In the third case studies were done on the fifth day following the burn, after the patient had received 4,250 cc. of serum and a high protein diet. In all 3 cases simultaneous determinations were done on the blood plasma.

In all 3 cases the concentration of albumin in the blister fluid was about 80 per cent of the albumin concentration in the blood plasma with slight variation in the individual cases, namely 79 per cent, 81 per cent and 83 per cent. The concentration of the globulin in the blister fluid, however, varied considerably, with values of 44 per cent, 72 per cent and 54 per cent of the concentration in the blood plasma. This variation in the globulin content resulted in a very decided difference between the albumin-globulin ratios of the blister fluid proteins and those of the plasma proteins. In all 3 cases, however, the albumin-globulin ratio of the blister fluid was greater than that of the blood plasma, the actual percentage differences being 179, 112 and 155. The average total protein concentration of the blister fluid was approximately 71 per cent of the plasma proteins with individual values of 65 per cent, 77 per cent and 71 per cent.

TABLE 3.—*Protein Concentration of Blister Fluid*

Patient	Percentage of Body Burned	Time After Burn	Serum Infused, Cc.	Fluid	Total Protein		Albumin		Globulin		Albumin-Globulin Ratio	Percentage of Plasma Level
					Gm. per 100 Cc.	Percentage of Plasma Protein	Gm. per 100 Cc.	Percentage of Plasma Protein	Gm. per 100 Cc.	Percentage of Plasma Protein		
1	45	5 days	4,250	Blister fluid	4.48	71	3.12	83	1.36	54	2.29	155
				Blood plasma	6.28		3.74		2.54		1.47	
3	10	½ hour	0	Blister fluid	5.74	77	3.65	81	2.09	72	1.75	112
				Blood plasma	7.38		4.50		2.88		1.56	
4	5	½ hour	0	Blister fluid	4.83	65	3.50	79	1.33	44	2.63	179
				Blood plasma	7.45		4.44		3.01		1.47	

It is of interest to note that the concentration of globulin and of albumin respectively in the blister fluid, as compared with the plasma levels, seemed to vary independently. Thus in case 4, in which the blister fluid albumin concentration was 79 per cent of the blood plasma, the globulin in the blister fluid was 44 per cent of the blood plasma. In case 2, in which the blister fluid albumin concentration was 81 per cent of the plasma level, the blister fluid globulin was 72 per cent of the blood plasma. These differences are probably due to varying degrees of capillary damage produced in the different patients or in different areas of blister formation in the same patient. With lesser degrees of capillary damage, principally the smaller albumin molecules may be lost, and with greater damage more of the larger globulin molecules may escape from the vessels.

COMMENT

It must be assumed that during the first twenty-four hours after a burn a large quantity of protein and water is lost in the burned area and possibly also into other tissues of the body from generalized capillary leakage and that, at the same time, extravascular fluids with low protein content are drawn into the circulation to compensate for this loss. It is difficult, therefore, to make more specific calculations of individual shifts without having pre-burn control values and complete plasma volume studies. We know from experimental and histologic evidence that the body has limited

11. Beattie, J.: Lancet **2**: 445 (Oct. 17) 1942. Beattie, J., and Collard, H. B.: Brit. M. J. **2**: 507 (Oct. 31) 1942. Harkins.[2]
12. Weston, R. E.; Janota, Martha; Necheles, Heinrich, and Levinson, S. O., to be published.
13. Beattie.[11] Whipple.[16]
14. See also Lambret, O., and Driessens, J.: Rev. de chir. **75**: 319 (May) 1937.

reserves of proteins which can be utilized somewhat during shock [15] or other emergencies.[16] Moreover, we know that loss of plasma from burns can be considerable and can exceed the amount normally present in the blood before the burn.

Blalock has shown that in dogs with only one third of the body surface burned an average loss of 57 per cent of the blood plasma occurred.[17] Keeley, Gibson and Pijoan found a reduction of plasma volume in burned dogs varying from 20 per cent to 60 per cent.[18] Since there is little loss from the cutaneous surface of burned dogs, these values may be too low for human beings.

Underhill, Fisk and Kapsinow [19] found that the edema fluid in rabbits with one sixth of the body surface burned varied from 3 per cent to 70 per cent of the total blood volume, usually from 20 per cent to 40 per cent. One rabbit lost 70 per cent of its original blood volume. By analogy, in extensive burns in human beings this would amount to a loss of fluid in excess of the total amount of circulating plasma. Harkins [2] performed numerous similar experiments.

In the case of human burns, Black [9] employed direct measurement of blood volume in 2 cases. In 1 case with 12 per cent of the body surface burned there was a calculated loss of 2,100 cc. of blood plasma. In another case with a third degree burn involving only 7 per cent of the body surface there was a calculated loss of 1,218 cc. of blood plasma. These 2 patients suffered a plasma loss of 175 cc. and 174 cc. respectively for every per cent of body surface burned.

Elkinton, Wolff and Lee,[20] using a rather complicated formula to calculate plasma loss from observed hematocrit and plasma protein, cited cases in which 40 cc., 48 cc., 54 cc. and 75 cc. of plasma were lost for each per cent of the body surface burned. Tenery [21] cited 1 case in which 100 per cent of the body surface was burned; a hematocrit value of 71 per cent one hour after the burn indicated a loss of approximately one half the plasma volume. This figure seems to be too low. Black [9] devised a formula based on observed hemoglobin as compared with the normal hemoglobin and normal plasma volume. This formula is unreliable because of wide variations of normal values for hemoglobin and plasma volume.

Since the acute pathologic physiology of burn shock is largely, if not to its greatest part, due to loss of plasma-like fluid from the blood, it follows that the logical therapy consists in adequate replacement of this fluid. Consequently, infusions of plasma or serum in large enough quantities to prevent the effects of the oligemia are indicated. In man, it would seem, the amount of fluid and protein lost is largely dependent on the extent of the body surface burned. Any formula for fluid replacement should be based on this factor primarily. Changes in hematocrit, hemoglobin and plasma protein concentration cannot be used as sole guides as to the quantity of serum or plasma required, because the normal values before shock are usually unknown and because these values are highly variable. The factor of protein and fluid reserves is highly variable too and also weakens the use of these determinations as satisfactory criteria of shock.

Harkins has devised a simple formula based on hematocrit values, namely 100 cc. of plasma for every point that the hematocrit is above normal. As a first aid formula he [2] suggested giving 50 cc. of plasma for each per cent of body surface burned. Of the many formulas suggested, those of Harkins are the simplest and least conducive to error in rapid calculations during emergencies. In the case of the first formula we suggest the use of a low "normal" hematocrit value rather than a high one, because in anemia a "normal" value actually may be abnormal. The second formula provides too little plasma for extensive burns, according to our experience.

In terms of percentage of body surface burned, patient 1 received during the first forty-eight hours after the burn 89 cc. and patient 2 75 cc. of serum for every per cent of body surface burned. The greater part of these infusions were given at four and at twenty hours after the burn. We suggest therefore that, following severe burns in adults for every per cent of surface burned 50 cc. of serum be given immediately and, in addition, 20 to 30 cc. during the first twenty-four hours and another 20 to 30 cc. during the next forty-eight hours. Additional crystalloid fluids should not be given during the first twenty-four hours after the burn, and fluids and a high protein diet by mouth should be given as soon as the patient is able to take food.

The foregoing doses of serum should be recognized merely as working doses, and if a satisfactory response is not obtained increased amounts should be given. It is far better to administer too much serum or plasma than too little. To restore comparable amounts of protein, approximately 16 per cent more plasma than serum must be given, because of the dilution of plasma with citrate solution.[22] If there is vomiting, the additional fluid thus lost must be replaced by saline solutions. If large infusions have to be given, as in our patients, we prefer serum in order to avoid the administration of excessive amounts of sodium citrate. The latter may produce hypocalcemia and tetany.

Elkinton, Wolff and Lee [20] maintain that, following a burn, the damaged capillaries do not regain their normal permeability for at least thirty-one to forty hours, so that only small transfusions of serum or plasma should be given during this period. They claim that most of the administered protein and fluid would be lost as quickly as they are given. This is true to a certain extent but appears to be a stronger argument for early large transfusions because, assuming that a certain percentage of administered plasma or serum continues to leak through the damaged capillaries, giving massive doses would mean a retention of a larger total amount of protein and fluid in the blood.

With present local treatments of the burned area the fluid loss from the cutaneous surface and into the burned tissues is limited by an eschar and pressure dressings. Therefore with increasing amounts of serum or plasma a greater proportion of the administered fluid would be retained in the blood stream.

The continued loss of plasma through the damaged capillaries, besides the reduction in the volume of circulating plasma, produces a depletion of the body reserves of protein and fluid. Administration of large doses of

15. Li, H. M.: Chinese J. Physiol. **10:** 7 (Feb. 15) 1936. Harkins.[2] Black.[9] Beattie.[11] Beattie and Collard.[11] Weston, Janota, Necheles and Levinson.[12]

16. Whipple, G. H.: Am. J. M. Sc. **203:** 477 (April) 1942.

17. Blalock, Alfred: Experimental Shock, Arch. Surg. **22:** 610 (April) 1931.

18. Keeley, J. L.; Gibson, J. G., Jr., and Pijoan, Michael: Surgery **5:** 872 (June) 1939.

19. Underhill, F. P.; Kapsinow, Robert, and Fisk, M. E.: Am. J. Physiol. **95:** 325 (Nov.) 1930.

20. Elkinton, J. R.; Wolff, W. A., and Lee, W. E.: Ann. Surg. **112:** 150 (July) 1940.

21. Tenery, R. M.: Surg., Gynec. & Obst. **72:** 1018 (June) 1941.

22. Usually 50 cc. of 4 per cent citrate solution is added to 500 cc. of blood. Assuming a plasma content of blood of 55 per cent, this would mean that 325 cc. of a solution containing 275 cc. of plasma and 50 cc. of citrate solution would be obtained after processing.

serum or plasma within the first twenty-four hours would prevent depletion of the body proteins and thereby might protect vital organs like the liver and kidneys. The satisfactory kidney function and the absence of jaundice in our patients point in this direction.[23]

It should be pointed out from our experience in cases of critical shock that infusions should be given at a rapid rate (100 cc. a minute). A large size needle or even two needles in two veins should be used.[24]

SUMMARY AND CONCLUSIONS

The usual serum or plasma therapy of acute extensive burns has been found to be inadequate.

Serum or plasma therapy must be given from the point of view of restoring a normal blood volume and not by units of fluid.

Our data and clinical observations definitely indicate the need for much larger doses of serum or plasma in the treatment of burn shock than are provided by the common formulas. By far the greater part of the fluid should be administered during the first twenty-four hours.

We suggest in the treatment of extensive burns in adults the immediate administration of 50 cc. of serum (or 60 cc. of plasma) for every per cent of body surface burned, and, in addition, 20 to 30 cc. for every per cent should be administered during the first twenty-four hours and another 20 to 30 cc. in the first seventy-two hours following the burn. Total administration, therefore, should be at least 100 to 110 cc. for each per cent of body burn. Crystalloid fluids should not be given during the first twenty-four hours. Fluids and a high protein diet by mouth should begin as soon as possible.

Simultaneous analyses of blister fluid and of blood plasma have been performed. Blister fluid contains a concentration of proteins equivalent to 70 to 80 per cent of the plasma proteins. The albumin content of blister fluid was fairly constant, but the globulin content showed decided variations independent of the albumin or globulin values of the blood and of the albumin values of the blister fluid.

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23. For discussion see Wilson, W. C.: Edinburgh M. J. **48**: 85 (Feb.) 1941.
24. Levinson, S. O.; Rubovits, F. E., Jr., and Necheles, Heinrich: Human Serum Transfusions, J. A. M. A. **115**: 1163 (Oct. 5) 1940.

A Necessary Step Toward Emotional Stability.—The student who faces the college adjustment while still dependent on and closely identified with his family—and most students are—has a special handicap in all the phases of his development. Before he can fit into the college environment altogether successfully he must complete the changes which are expected to occur in the family relationship as the individual grows up. If the student can be properly assisted in handling these problems he may be saved much emotional distress and prevented from wasting energy which can be used more profitably elsewhere. For detachment from the family is a necessary step toward the emotional maturity of an individual; it is a prerequisite to the smooth development of other growth process. . . . Detachment from the family does not imply antagonism to it or a complete denial of its participation in the individual's life. And in the achievement of detachment, parental guidance need not be thrown off abruptly or ignored. As the phrase is used here, the development of independence means not a severance of all relations between the growing individual and his family but the gradual establishment by the individual of habits of independence in choosing his goals, his values and his associates.—Fry, Clements C.: Mental Health in College, New York, Commonwealth Fund, 1942.

THE THERAPY OF BACTERIAL ENDOCARDITIS WITH MASSIVE DOSAGE OF SULFADIAZINE

REPORT OF FOUR CASES

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Recently Dick[1] reported the recovery of a patient with bacterial endocarditis to whom a massive dose of sodium sulfadiazine was administered. This is a report of 4 cases in which similar therapy was employed.

CASE 1.—A white woman aged 36 had been having fever daily for five weeks before her admission to the Hotel Dieu on Sept. 21, 1942, the highest temperature each day being from 101 to 103 F. One week before admission she had experienced sudden pain in the left infra-axillary region, aggravated by deep breathing. She gave no history of rheumatic fever or of preexisting heart disease.

She was in good general condition. The blood pressure was 130 mm. of mercury systolic and 50 diastolic. The pulse approached a water hammer type. The heart was moderately enlarged. Blowing systolic and diastolic murmurs were audible over the base of the heart. The lungs were normal. The spleen was considerably enlarged, the tip extending about 5 cm. below the rib margin on deep inspiration. No petechiae were seen. Fever was present every day before treatment was begun, the daily peaks varying between 101 and 103 F.

Red blood cells numbered 3.34 million on admission, leukocytes 7,000 and hemoglobin 10.5 Gm. The urine contained a trace of albumin and numerous red cells. Culture of venous and arterial blood yielded a nonhemolytic, non-pigment producing streptococcus on the mediums which were used.

On September 29, 30 Gm. of sodium sulfadiazine was given intravenously, after alkalization of the urine by the administration of sodium bicarbonate. Thirty Gm. rather than 40 as used by Dick was given because of the small size of the patient (110 pounds, or 50 Kg.). Vomiting occurred immediately and was repeated at short intervals for twenty-four hours. The urine became grossly bloody six hours after the drug was given and remained so for three days; microscopic hematuria, present before treatment, continued.

Immediately after the injection the concentration of free sulfadiazine in the blood was 75 mg. per hundred cubic centimeters, twelve hours later it was 32, twenty-four hours later 22.5, thirty-six hours later 15, sixty hours later 5 and eighty-four hours later 1.2. On the day following the injection the temperature reached 103 F. but did not exceed 100 for seven days thereafter. The patient's general condition seemed unchanged. A blood culture on October 1 was still positive.

On October 4, five days after the initial treatment, 5 Gm. of the drug was given intravenously, on October 5, 5 Gm. intravenously and 4 by mouth; on October 6, 12 Gm. by mouth, and on October 7, 8 Gm. intravenously and 6 by mouth. On October 7 the blood concentration had reached 42 mg. per hundred cubic centimeters. Treatment was suspended for one day and then resumed, attempt being made to maintain a blood concentration of from 15 to 20 mg. per hundred cubic centimeters.

On October 10 petechiae were noted about one ankle. On October 13 severe pain, swelling and tenderness in the left forearm appeared, which was attributed to embolism in the forearm muscles. On this day the blood culture was still positive.

On October 14, because of increasing microscopic hematuria, treatment was suspended for two days. Thereafter sufficient

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1. Dick, George F.: Subacute Bacterial Endocarditis: Recovery Following Intravenous Sodium Sulfadiazine, J. A. M. A. **120**: 24 (Sept. 5) 1942.

sulfadiazine was given by mouth to maintain blood levels of from 14 to 20 mg. per hundred cubic centimeters, and hyperpyrexia was induced at two or three day intervals by intravenous injection of typhoid vaccine.

Throughout the treatment, transfusions were given whenever the blood count revealed increasing anemia. On November 3 the red cells numbered 3.9 million, the hemoglobin 11.3 Gm.

After the first week of treatment the patient's condition slowly grew worse. The blood culture remained positive. Two further embolic episodes occurred, one in the muscles of the buttock, the other in the spleen. Daily temperature peaks varied from 100 to 104 F. Therapy with sulfadiazine was discontinued on October 31, and the use of sodium paranitrobenzoate begun. Since there was no favorable response to this drug, the use of sulfanilamide in large dosage was begun on November 17. Although the temperature remained practically normal while sulfanilamide was being employed there was no improvement in the general condition of the patient, and death occurred on Dec. 7, 1942.

Autopsy revealed numerous vegetations on the aortic valve with ulceration through the posterior cusp and secondary involvement of the ventricular surface of the anterior mitral cusp. The vegetations were small and smooth, suggesting that partial healing had occurred. There were three large old infarcts in the spleen and two small ones in the right kidney. Acute diffuse glomerulonephritis was also present.

CASE 2.—A white man aged 25 was admitted to Charity Hospital on Sept. 10, 1942 with a chief complaint of fever of twelve days' duration. The onset had been insidious and associated with undue fatigue. Five days after the onset the symptoms became more pronounced and his temperature had been observed to vary daily between 99 and 104 F. At this time general malaise was prominent. His general health had been good until the onset of the present illness. He had experienced vague joint pains at the age of 12 years. Two years thereafter he became troubled with recurrent epistaxis and was told by his physician that he had enlargement of the heart. For the next four years he "took things easy" and throughout has experienced no cardiovascular symptoms.

The patient was well developed and well nourished and not acutely ill. His skin, particularly that of his face and hands, presented a delicate "cream and coffee" pigmentation together with moderate pallor. No petechiae were seen. Many teeth were carious, and oral sepsis was present. The cardiac apex impulse was diffuse and of increased forcefulness and was located in the fifth and sixth intercostal spaces at the midclavicular line. A systolic shock was present at the apex, where the first heart sound was greatly accentuated and followed by a 2 plus systolic murmur. A murmur characteristic of aortic insufficiency was audible at the aortic valve area. The rhythm was regular and the blood pressure was 130/45. Neither the liver nor the spleen was palpable.

Blood cultures taken during the first few days following admission were negative, but after the second week an alpha streptococcus was consistently isolated.

On the twenty-fourth hospital day (October 3) 40 Gm. of sodium sulfadiazine was given intravenously, and a high fluid intake maintained thereafter. Through a misunderstanding of orders the blood level was not determined until twenty-four hours later, when it was 25 mg. per hundred cubic centimeters. Vomiting occurred immediately after the injection and recurred several times. Gross hematuria appeared within a few hours and persisted for four days, but there was no diminution of urinary output and blood urea remained normal.

On the fourth day following the injection the blood level of free sulfadiazine had declined to 1.06 mg. per hundred cubic centimeters. Subsequent treatment has been substantially the same as that employed in case 1: sulfadiazine, sulfadiazine and fever therapy, sodium paranitrobenzoate, sulfanilamide. No definite improvement occurred following the initial therapy; the blood culture has remained positive, and daily fever persists. The general condition of the patient has remained fairly good, owing possibly to inhibition of growth of the organisms by the large amounts of sulfonamide drugs which have been used.[2]

2. This patient died on Jan. 4, 1943. Autopsy revealed vegetative endocarditis of the aortic and mitral valves and acute diffuse glomerulonephritis.

CASE 3.—A white woman aged 39 was admitted to the Charity Hospital on Sept. 16, 1942 complaining of cough and shortness of breath. She dated the onset of her illness eight weeks previously, with a cold which became progressively worse. Her local physician examined her and told her that she had a bad heart. Her symptoms were progressive, with increasing difficulty in breathing. Her past history revealed nothing of significance.

The patient was well developed and well nourished and her temperature was 100.4 F. There were signs of congestion at both lung bases. The heart was moderately enlarged. There were diastolic and systolic murmurs audible over the base of the heart. The blood pressure was 115/50; the pulse approached Corrigan in type. The rhythm was regular. The liver was enlarged to 2 or 3 fingerbreadths below the right costal margin. The spleen was tender and moderately enlarged (3 to 4 fingerbreadths below the left costal margin). The left ankle was tender, reddened and swollen.

Laboratory examination revealed 7.5 Gm. of hemoglobin, 3,100,000 red blood cells and 11,200 white blood cells. The urinalysis was negative except for a trace of albumin. The urea nitrogen was 50 mg. per hundred cubic centimeters. X-ray and fluoroscopic examination revealed generalized cardiac enlargement. The venous pressure was 110 mm. of water.

The diagnosis of an acute episode of rheumatic fever was considered on admission and the patient was given 1 Gm. of sodium salicylate three times daily. The fever and pain, swelling and redness of the ankle responded to this therapy, but the patient became more dyspneic and uncomfortable in spite of full digitalization.

During the first week of hospital stay, petechiae were noted on the lateral aspects of both feet. Flame shaped areas of hemorrhage were visible in both fundi. Increased reflexes with ankle and patellar clonus developed bilaterally. The first blood culture was negative, but ones taken on the 22d and 24th of September were positive for nonhemolytic streptococci. At this time salicylates were discontinued. The patient was first treated with the usual doses of sulfadiazine (4 Gm. initially followed by 1 Gm. every four hours day and night) for four days, at the end of which time the sulfadiazine blood level was 11.7 mg. per hundred cubic centimeters. The patient's temperature ranged from 100.6 F. to subnormal daily.

On the evening of September 30, after confirmation of the diagnosis by positive blood culture, 30 Gm. of sodium sulfadiazine in 1,500 cc. of distilled water was given intravenously, the urine previously having been alkalized by administration of sodium bicarbonate. The blood level, obtained four hours after administration of the drug, was 85.4 mg. of free sulfadiazine per hundred cubic centimeters of blood. The next morning the blood sulfadiazine level was 63.5 mg. per hundred cubic centimeters and the urea nitrogen was 19.6 mg. per hundred cubic centimeters. During the first twenty-four hours after administration of the drug, 390 cc. of grossly bloody urine was voided. The patient's temperature was normal.

On October 2 the patient was semicomatose, and bleeding of the gums was noted. One hundred and sixty cc. of blood tinged urine was voided. The blood sulfadiazine level was 45 mg. per hundred cubic centimeters and the urea nitrogen was 33.2 mg. per hundred cubic centimeters. A bilateral sympathetic block was done in an attempt to increase urinary excretion. Five hundred cc. of blood was given by transfusion. The blood pressure was 148/34 and the pulse was definitely water hammer in character. A blood culture taken on this day showed no growth. The next day ureteral catheters were inserted and 85 cc. of bloody urine was obtained. The catheters were left in place, and frequent lavage was performed.

On October 4, 200 cc. of urine was voided. The next day the catheters were removed, no evidence of ureteral blockage being present. No urine was voided during the next twenty-four hour period. The patient's condition was poor, and edema was increasing. The blood sulfadiazine level was 22.5 mg. per hundred cubic centimeters, urea nitrogen 50, creatinine 5.9 and carbon dioxide combining power 68. Blood culture this day was positive, less than 1 colony per cubic centimeter of blood.

On October 6, 65 cc. of purulent foul urine was voided, and the next day 700 cc. The patient's condition was growing worse. She was cyanotic and irrational and on October 8

she was again semicomatose. The blood sulfadiazine level was 20.2 mg. per hundred cubic centimeters, urea nitrogen 66.8, creatinine 9.5 and the carbon dioxide combining power 66. Blood culture was tentatively negative. She excreted no urine for thirty hours. The next day 300 cc. of urine was obtained by catheterization. Her condition continued to be grave and she died on the morning of October 10. Her temperature had been essentially normal since administration of the sodium sulfadiazine.

Postmortem examination revealed multiple small vegetations on congenitally deformed (bicuspid) aortic valve cusps, one of which was perforated by ulceration. The kidneys were enlarged and reddened and showed no gross areas of infarction. On section, the cortical striations were obscured. In and immediately adjacent to the pyramids were seen light yellowish gray streaks alternating with the deep red of the tissue. The pelvis, calices and ureters were free of crystal formation and of pathologic changes. On microscopic examination the essential lesions were shown to be of the collecting tubules, which were filled with a purulent necrotic exudate with some extension into the surrounding tissue. There were no crystals in the exudate, but it did show the same refraction to polarized light as sulfadiazine crystals. The glomeruli were unaffected. In addition there were infarction of the spleen, thrombophlebitis of both ovarian veins and multiple infarction of the lungs.

CASE 4.—A white youth aged 16 years was admitted to Charity Hospital on Sept. 13, 1942 with the complaints of chills, fever and frontal headache of simultaneous onset ten days prior to admission. The symptoms continued and were somewhat less severe after the first week. Occasional vomiting had occurred. On the third day pain developed in the left hip, which was aggravated by exertion. A local physician had given him yellow tablets (probably atabrine), which he had continued to take, one three times a day, until the day of admission. The past history revealed that two years before he had had a febrile illness of three weeks' duration characterized by low grade fever, epistaxis and joint pains. A local physician had pronounced the condition malaria; however, the fever failed to respond to quinine, which was started during the first week. He had had occasional attacks of sore throat and had had an abscess of the right ear three years before. The remainder of the history was noncontributory.

The patient was acutely ill and moderately lethargic. Herpes simplex was present. The skin presented a light yellow tint, although the scleras were white. One petechial hemorrhage was present in the fundus of the right eye and another on the mucous membrane of the lower lip. Examination of the lungs revealed no abnormal findings. The heart was thought to be of normal size. A loud, harsh systolic murmur was present at the apex accompanied by a thrill. The rhythm was regular. The rate was 128 per minute. The blood pressure was 120/78. The spleen and the liver were not felt and the remainder of the physical examination was negative.

The initial laboratory studies showed 4.5 million red blood cells per cubic millimeter in the peripheral blood. The white blood cell count was 10,000 with 98 per cent polymorphonuclear leukocytes. No malarial parasites were found. The specific gravity of the urine was 1.023, and 1 plus albumin was present, together with many pus cells and a few hyaline casts. Urine cultures were negative for organisms of the typhoid group. The blood urea nitrogen was 12 mg. per hundred cubic centimeters. The spinal fluid was negative. X-ray examinations of the chest and hip were negative.

During the nine days of hospitalization the temperature remained elevated between 102 and 104 F. with occasional peaks to 106 F. Recurrent petechial hemorrhages appeared in the conjunctivas, fingers and toes. Occasional vomiting occurred. The lethargy progressed to stupor after the first week, and it was apparent that the patient could not live more than a few days. At this time venous and arterial blood cultures taken on admission were reported as negative. The diagnosis of bacterial endocarditis nevertheless seemed almost certain and the patient was given 30 Gm. of sodium sulfadiazine intravenously dissolved in 600 cc. of distilled water following an intravenous infusion of 2,000 cc. of isotonic solution of sodium chloride. The blood level twelve hours later was 69 mg. per hundred cubic centimeters. At this time the urine had become grossly bloody; the blood urea nitrogen was 38 mg. per hundred cubic centimeters and the carbon dioxide combining power was 40. Sixteen hours after the administration of sodium sulfadiazine the patient died.

Autopsy revealed many small and several large vegetations on the mitral valve. Infarctions of the spleen and kidneys were present, together with countless petechial hemorrhages at all visceral surfaces. No crystals were found in the tubules or calices, and no lesions attributable to sulfadiazine were present. Cultures of the heart's blood and of the vegetations were positive for alpha streptococcus.

SUMMARY

Four patients with bacterial endocarditis were treated with sodium sulfadiazine in massive dosage. All four patients showed gross hematuria following the massive initial dose.

Two patients who were in good condition when treatment was begun showed hematuria as the only significant toxic effect of the drug, but neither patient was cured.

The third patient, who was very ill when the treatment was given, developed suppression of urine and died of uremia eleven days after a single intravenous injection of 30 Gm. of sodium sulfadiazine. At autopsy necrotizing nephrosis, involving principally the collecting tubules, was present.

The fourth patient, who was practically moribund when the treatment was given, died sixteen hours after the intravenous administration of 30 Gm. of sodium sulfadiazine. No renal lesions attributable to toxic effect of sulfadiazine were present at autopsy.

PANHYSTERECTOMY VERSUS IRRADIATION FOR EARLY CANCER OF THE UTERINE CERVIX

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It is the clinical impression of many gynecologists that panhysterectomy offers a satisfactory method of treatment for selected cases of early cancer of the cervix. In the most recent report on cancer of the cervix from the Kelly Clinic,[1] 1 patient with a recurrence after operation was treated for every 10 patients admitted with primary cancer of the cervix. We have reviewed a selected group of 36 cases of early carcinoma of the cervix treated with panhysterectomy and compared the results with 704 unselected cases in all stages, treated with radiation.

It is, however, not a matter simply of comparing gross and absolute cure rates; other factors must be considered. For example, Martzloff[2] demonstrated with operable material that the microscopic appearance was of importance in determining prognosis. Due consideration must be given to such an essential aspect. We have also reviewed the curability in relation to the microscopic changes in both irradiated and surgically treated patients.

Dr. Richard W. TeLinde helped the authors in this study.

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The problem has been complicated in recent years by the not infrequent "accidental" finding of exceedingly early carcinoma when there is no real suspicion of it. These "accidental" findings are made by the more common use of biopsy of the cervix. In this group may be included the so-called preinvasive carcinoma,

TABLE 1.—*Distribution of Type of Carcinoma*

	Number	Per Cent
Adenocarcinoma	26	4
Spinal cell carcinoma	46	6
Transitional cell carcinoma	543	77
Spindle cell carcinoma	89	13
	704	100

or Bowen's disease of the cervix. It is obvious that any conclusion which might be reached for the treatment of early cancer of the cervix in general would not necessarily apply to the exceedingly early lesions just mentioned.

MATERIAL AND RESULTS

The irradiated material reviewed in the present study consists of 704 patients with carcinoma of the cervix treated by radium or radium and x-rays at the Kelly Clinic between Oct. 1, 1927 and Dec. 31, 1935. The details of treatment and other clinical features have been reported elsewhere.[1]

The material has been divided into clinical stage according to the League of Nations classification and further subdivided, with the Martzloff classification, according to microscopic appearance of the tumor. The adenocarcinomas have been separated from those of the epidermoid type, which are subdivided into spinal cell, transitional cell and fat spindle cell. The spinal or prickle cell variety is composed for the most part of cells resembling those seen in the superficial zone of stratified cervical epithelium. The cells are adult in character and exhibit their squamous tendencies by the occurrence of cell nest or pearl formation. The cell membranes are distinct, and although they resemble prickle cells the intercellular protoplasmic bridges are

TABLE 2.—*The Cure Rate in Relation to Microscopic Abnormalities: 704 Cases of Cervix Carcinoma Treated with Irradiation*

Clinical Stage	Spinal Cell Cancer	Transitional Cell Cancer	Spindle Cell Cancer	Adeno-carcinoma	Total
1	2/6 (33%)	37/64 (68%)	10/11 (91%)	1/6 (16%)	50/87 (57.5%)
2	3/4 (75%)	35/90 (39%)	8/24 (33%)	4/6 (67%)	50/124 (40.3%)
3	2/9 (22%)	41/180 (23%)	5/42 (12%)	4/9 (44%)	52/240 (21.7%)
4	1/27 (4%)	10/209 (5%)	0/12 (0%)	0/5 (0%)	11/253 (4.3%)
Total	8/46 (17%)	123/543 (23%)	23/89 (26%)	9/26 (35%)	163/704 (23%)

not easily discernible. Mitoses are few. The transitional cell variety is composed of cells resembling the midlayer of stratified cervical epithelium. The cells may have variable shapes and are often round. The cytoplasm is relatively sparse. The spindle cell variety is composed of spindle shaped cells resembling sarcoma. Mitoses are common. The cytoplasm is very sparse and the cells are closely packed.

The distribution in the 704 cases of the present series is shown in table 1.

Table 2 gives the five year cure rate according to the clinical stage and microscopic structure.

The operative material consists of all patients with early carcinoma of the cervix operated on at the Johns Hopkins Hospital during the ten year period 1927-1937. It was the practice of the clinic during that time to operate on a selected number of such patients. This small group consists of only 36 patients. These cases were chosen as suitable for operation in consultation with the gynecologist in charge of radiation therapy.

The 36 cases were distributed as follows: adenocarcinoma 2, spinal cell carcinoma 2, transitional cell carcinoma 30, spindle cell carcinoma 2. The results of treatment are shown in table 3.

COMMENT

The absolute cure rate of 41.6 per cent for the patients operated on does not compare favorably with the cure rate of 57 per cent by irradiation.

Although the results of the surgically treated group are compared in this paper with a series of stage 1 cancers treated with radiation, the superiority of the latter is greater than is indicated by the figures herein quoted. This superiority arises from the fact that the surgically treated group represents lesions with an

TABLE 3.—*Cure Rate in a Series of Thirty-Six Selected Patients with Early Cervix Carcinoma Treated with Panhysterectomy*

Total Number of Patients	Living and Well 5 Years or More	Living and Well 5 Years After Treatment by Radium for Recurrence After Operation	Died	Not Followed	Absolute Cure Rate by Operation, per Cent
36	15	2	15	4	41.6

average malignant ulceration of 1 cm. (Schmitz 1), while the cancers in the irradiated group are classified as stage 1 League of Nations and therefore represent lesions further advanced than those of the surgically treated group. It would perhaps be more accurate to compare the 41 per cent cure rate by operation with the reported cure rates up to 80 per cent for Schmitz 1 cases.

However, as already stated, the microscopic abnormality is of great importance in determining the prognosis in early cases.

It is impossible to discuss the subject of tumor morphology relative to curability without detailed reference to the work of Martzloff.[2] He reported the five year survivals, according to microscopic structure, in 379 cases of carcinoma of the cervix. Martzloff's cases were divided into adenocarcinoma and three types of epidermoid carcinoma—spinal cell, transitional cell and spindle cell. It should be emphasized that this classification is morphologic and not histogenic. It should also be remembered that the criterion of classification is fundamentally different from the grading of tumors according to the method of Broders. However, a rough parallel between the two methods exists: low grade tumors (grade 1 Broders) are for the most part of the spinal cell type while high grade lesions usually correspond to the spindle cell type.

When only operable material was considered and cases presenting unsuspected involvement of the broad ligaments at the time of operation were eliminated, the five year cure rate of patients surviving operation was

found by Martzloff to be adenocarcinoma 75 per cent, spinal cell cancer 47 per cent, transitional cell cancer 24.2 per cent and spindle cell cancer 9.5 per cent. These results were obtained by radical Wertheim operations on carefully selected material.

It would be a misapplication of statistics to apply Martzloff's figures to curability by irradiation. In 1928 Healy and Cutler [3] found that by irradiation the curability of carcinoma of the cervix, with respect to the microscopic appearance of the tumor, was the reverse of that obtained by operation; provided cases of similar clinical stage were considered, the best results were obtained in the spindle cell group. These conclusions were based on a study of 200 cases. The investigations of Hueper and Schmitz [4] and of Pomeroy and Strauss [5] seemed to confirm these observations of Healy and Cutler, while Plaut [6] could find no correlations between microscopic appearance and curability. Such investigations have, for the most part, been handicapped by material insufficient for classifying their results by both clinical stage and microscopic appearance.

The more detailed study of the relation of microscopic abnormality to cure rate and method of therapy may best be discussed in a paragraph for each pathologic type.

Transitional Cell Carcinoma.—With irradiation a 58 per cent cure rate was obtained. Of the 30 patients with transitional cell carcinomas operated on, 14, or 47 per cent, survived for five years. The difference is undoubtedly greater than that expressed by the percentage, as the irradiated cancers are League of Nations 1 while the operative cancers are Schmitz 1, including 5 preinvasive lesions.

Spindle Cell Carcinoma.—There are too few spindle cell cancers in the operative series to estimate the curability in this group. However, it is reasonable to assume that Martzloff's figure of 9 per cent curability would be higher in the Schmitz 1 cases herein considered, as Martzloff was dealing with League of Nations 1 and some 2's. Yet it is difficult to believe that the figure would nearly approach the 91 per cent cure obtained with irradiation, or with comparable figures reported by other observers.

Spinal Cell Carcinoma.—The material in the present study contains only 6 spinal cell carcinomas stage 1 treated with radiation and only 2 by operation, so that no conclusion is possible. This is particularly unfortunate, as certain collateral evidence indicates that this might be a favorable group for operation. First, in considering all stages of carcinoma (table 2) irradiation of spinal cell cancers gives the poorest results. This is in confirmation of Healy and Cutler and others. Second, Martzloff obtained the most favorable results by operation in this group. While no conclusion is possible it is true that irradiation has proved more generally satisfactory, all cases considered. So it is apparent that the burden of proof must be put on the advocates of operation.

Adenocarcinoma.—Here too there is insufficient evidence for or against operation or irradiation to warrant a conclusion. There is reason to believe that adenocarcinoma is the most favorable group for operation, as indicated by the operative cure rate of 75 per cent reported by Martzloff. It is difficult to believe that irradiation can equal this percentage when comparable clinical material is considered. The problem is complicated by the relatively satisfactory results of many workers with irradiation in adenocarcinoma of the cervix irrespective of the clinical stage (table 2). However, based on Martzloff's results, and until further statistics on group 1 adenocarcinoma have been accumulated panhysterectomy must be considered a satisfactory method of therapy for this uncommon clinical picture.

Preinvasive Carcinoma.—While the present study strongly suggests that operation is not the method of choice in early stage 1 cases, especially in the transitional and spindle cell groups, it does not at all indicate that the "accidental" and preinvasive lesions should not be operated on. In the 36 cases of the operative series herein reported, 5 belong to this group. All these patients are living except 1, who died of postoperative shock. With the information at hand, the question of operation or irradiation cannot be definitely decided for this group.

In a more general consideration of the selection of type of therapy for these early cases of carcinoma of the cervix, it is worth noting that, although the lesion in several instances was thought to be of the earliest, there was found, on examination of the gross operative specimen, a large intracervical nodule of cancer. For this reason, and because of the experience considered in this paper with slightly more advanced squamous cell lesions, we feel that irradiation will prove more satisfactory for the entire squamous cell group, including the "accidentally" discovered and preinvasive lesions. If radium is selected as the method of treatment, full dosage should be employed, because early lesions of the cervix may be more extensive than clinical examination can indicate.

SUMMARY AND CONCLUSIONS

Although irradiation has been demonstrated by numerous observers over a period of years to be more satisfactory than panhysterectomy for the average case of cervix carcinoma, it is the opinion of many gynecologists and general surgeons that operation is a satisfactory method of therapy for very early cases. That panhysterectomy is commonly selected in such cases is indicated by the fact that, in our experience, for every 10 patients with primary carcinoma of the cervix there is 1 admitted for treatment of a recurrence after operation.

During the years 1927-1937, 36 patients with early carcinoma of the cervix were carefully selected for operation at the Johns Hopkins Hospital. In spite of this careful selection a five year cure rate of only 41 per cent was obtained. This does not compare well with the cure rate of 57 per cent obtained by irradiation with less favorable material.

It has therefore been concluded that as a practical therapeutic procedure for early carcinoma of the cervix panhysterectomy is an unsatisfactory method of therapy. Irradiation is the treatment of choice.

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DIAGNOSTIC TIME SAVERS FOR OVERWORKED PHYSICIANS

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For the duration most of the physicians left to care for the civilian population are going to be terribly overworked. Already many are carrying a killing load; the older men who used to have assistants are now back to taking histories, and many are having trouble because so many of the roentgenologists and laboratory workers who used to help them with their diagnoses have gone to war. More and more, then, the physician who just cannot get around to see all the persons who call for him in a day will have to attend first to those who appear to be seriously ill; he will have to try to make diagnoses as quickly as possible and with the minimum of help from others, and he will have to try to recognize immediately and dismiss quickly all those many chronic complainers and psychopathic worriers who would love to take up much of his day with long rambling accounts of their aches and pains. Perhaps he can get some of these persons to look on the sparing of their physician's time as their contribution to the war sacrifice! They are probably too self centered to reform, but one might suggest it to them.

All this, of course, does not mean that any one is advocating the doing of poor or careless work. What is proposed is that we physicians now do more of what we have always done, and that is to try to make the diagnosis with the minimum of expense to the patient and the minimum of effort for ourselves. All physicians cannot practice as does a professor of medicine in a free clinic, ordering all the tests he wants; many of his patients haven't the money to pay for them, others are not concerned enough over their illness to want to pay for them, and many do not need them because the diagnosis can be made correctly without their help.

Every physician worth his salt should be making perhaps more than half of his diagnoses every day without the help of roentgenologic or laboratory reports. Usually he must go on and order some tests, but they will serve largely to confirm his first hunch or to safeguard his reputation or to satisfy the patient who usually looks on him merely as a passive broker who will order tests and then relay the reports! Today it seldom occurs to a much traveled patient that a good clinician can recognize many a syndrome and be sure of it merely from the answers to a few questions or that he can see in a few minutes that he is dealing with a scatterbrained neurotic, a constitutional inadequate, a chronic worrier, a hypersensitive complainer, a fussbudget of a perfectionist or a psychopath. All the average patient in a consultant's office wants today is tests and plenty of them; he wants to "be given the works."

I, who depend on tests day after day, would be one of the last to decry their value, but still I maintain that nowadays hundreds of diagnoses would be made more correctly if the physician concerned were to order fewer tests and ask a few more questions of the patient.

Often when I am trying to get a psychoneurotic woman to see how it was that after a few minutes of talking to her I could be so certain that her troubles were functional in origin I will say "Let us suppose you were to hear a child cough violently, then whoop, and finally vomit, wouldn't you know what it had?" "Surely," she says, "it would have whooping cough." "Of course, and you would be sure of it, wouldn't you, because you have seen that clinical picture many times before? You wouldn't feel the need for sending the child for any laboratory tests. All right, then, why can't you see that after years of studying the sick and listening daily to their stories of illness, I ought to be able to recognize a few of the common diseases the minute I hear the well known tale; I ought to know them on sight just as you know whooping cough on sight."

What I wish to do in this paper is, first, to encourage physicians to put greater trust in the diagnoses they make from the history and, second, to pass on, especially to my younger medical brethren, some of the little tricks of diagnosis that I have picked up in the course of forty years. So often when a patient is referred to me for diagnosis I am impressed by the fact that the wise old family doctor, and perhaps my young assistant as well, had the right hunch as soon as they took the history; they felt then that the trouble should all be nervous in origin, but when from the laboratories came reports of a slowly emptying gallbladder, some peculiarity in the electrocardiogram or some agglutinins for Brucella abortus they lost confidence in their clinical acumen and gave in to the laboratory report. In many such cases they shouldn't have given in, because subsequent events showed that their first diagnosis was right. The laboratory finding was usually correct but it wasn't significant. It was like the finding of amebas in the stools of a man who has recently collapsed and quit work because of a slight stroke. In such cases one would like to hear the man's physician say to him "Even if you have amebiasis or the diseased gallbladder that some one says you have, that couldn't possibly account for your symptoms; they are those of a nervous breakdown."

HINTS TOWARD THE RECOGNITION OF FUNCTIONAL TROUBLES

In most cases of neurosis the diagnosis is best made from the recognition of a typical story and not from attempts to exclude organic disease. The trouble with the latter technic is that too often the overhauling turns up some unimportant organic disease, and then, if one hasn't already discerned what the trouble is, one is very likely to be thrown off the diagnostic track.

Good signs of a neurosis are the inability of the patient to say what the main complaint is, a tendency to answer the physician's questions with irrelevant statements, to complain too much of little things, to break in and not let the physician finish a sentence, to keep consulting a long written list of symptoms, to tremble and weep as the story is told or to tell the physician how to diagnose and treat the disease. The harder it is to get a clear history out of a person, the less likely he or she is to have organic disease.

Certain symptoms practically always mean a neurosis —symptoms such as globus, jitteriness, the fear of not being able to get a deep breath, fluttering or burning in the abdomen, oft repeated belching, regurgitation of food immediately or soon after eating, distress or bloating immediately after eating or especially after drinking cold water or "pop," attacks of pain and soreness in the lower abdomen associated with the passage of mucus, abdominal distress which can be avoided or relieved by keeping the bowels open, attacks of abdominal pain following emotional debauches, distresses that come before breakfast, pains that leave no residue of

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soreness, bloating that comes up during the day and disappears during the night without the passage of flatus, and pains that have survived several abdominal operations.

The wise physician will think also of a neurosis or a neuralgia whenever he hears of a pain that for years has been fairly constant day and night and which does not interfere much with sleep. A long lasting ache in the left upper quadrant of the abdomen, and all those aches which are out in the abdominal wall are usually associated with or due to spondylitis. Pains in the back are usually arthritic in origin and rarely have anything to do with the kidneys. Pains that shift about in the abdomen are less likely to have an organic basis than are those which remain in one place. Abdominal discomfort which is not made either worse or better by the taking of food or the emptying of the bowel is not likely to be arising in the digestive tract. Pelvic pain in a woman is not likely to be arising in disease of the pelvic organs if it is not made worse by menstruation.

Diarrhea which comes in short episodes is often due to panicky fear or to the eating of some food to which the patient is allergic. The woman who remains fat in spite of years of abdominal discomfort, if she hasn't gallstones, usually is suffering from a neurosis. The person with greatly exaggerated knee jerks is often suffering from a neurosis. The person who responds wrongly to barbiturates and opiates is usually somewhat psychopathic or is in a nervous breakdown. The patient who aches all over may be arthritic but usually is a bundle of nerves. The woman whose liver region is always sore, but who has never had colics, and has a gallbladder which functions well with the dye had better not be operated on. Occasionally her trouble is due to food allergy. Always it is well to remember that pseudocholecystitis and pseudo-ulcer are fairly common conditions. Chronic appendicitis is probably a rare disease and adhesions probably rarely produce symptoms.

Although a psychoneurotic, fussy and fretty woman can have a cancer or other serious disease, usually all her many aches and pains are arising in her disturbed brain and are being referred out to the periphery of her body. The point to remember is that pain is a common symptom of psychoneurosis. If this fact were more widely known, laboratory workers in this country would be spared an enormous amount of futile work and surgeons would be spared many disappointments because of a failure to cure.

SPONDYLITIC PAIN

A common type of pain which is often puzzling and is usually best recognized from the history arises in an arthritic spine. Such pain is easily recognizable when it consists of sharp stabs and comes in a person who is arthritic and has suffered from lumbago, sciatica, wry neck, cricks and sacroiliac lameness. The trouble is not so easy to diagnose when the distress comes in the epigastrium and several physicians have been hazarding diagnoses of angina pectoris, a poorly emptying gallbladder, peptic ulcer or gastritis. But even then one can often save the patient much expense for tests by eliciting such facts as that the distress is not really a pain but an ache or a burning and that it is felt superficially and not deep in. The fact that it has no relation to fast walking or going upstairs or getting angry indicates that it is not arising in the heart. The fact that the man can walk rapidly or go hunting or play tennis will show that his cardiac reserve is good. Under the circumstances an electrocardiogram will probably not show anything wrong.

The facts that the distress has no relation to eating or belching or taking soda or passing feces or gas and that it was not helped by a Sippy regimen will indicate that it is not arising in an ulcer or any other disease of the digestive tract. The facts that it tends to get worse when the patient sits a while or lies down and that it goes away when he gets up and walks around a while make it almost certain that the disease is arthritic or fibrositic in nature.

CONSTITUTIONAL INADEQUACY

One of the most common problems in medicine is that of the woman who ever since girlhood has had one puzzling illness after another. She usually has had headaches, weak eyes, indigestion, constipation, abdominal pain, dysmenorrhea, palpitation, backache, bladder trouble, insomnia and aches and pains all over. She possibly has had several abdominal operations, none of which did her much good. Often one can see at a glance that she is constitutionally frail, and a few minutes of listening to her tale of woe will be enough to convince any experienced physician that no amount of examining will ever reveal one localized "cause" for all her troubles. Poor nervous heredity and "the contractor's having put in poor materials" are usually the best explanations for her miseries. Often tactful questioning will show that the woman has near relatives who have been insane or good-for-nothing, and to me this fact is the most important one in the whole history.

EXTREME FATIGUE

Another common problem is that of the woman who complains primarily of an extreme and distressing sense of fatigue for which several careful examinations have failed to reveal a cause. A few minutes questioning usually shows that she has had the distress for years, so it can hardly be due to tuberculosis or brucellosis or cancer. It is usually worse in the morning and clears away toward evening, so obviously it is not due to the strain of the day's work. Often the woman is not overworked, vacations have not helped, and in spite of all her years of misery she is well nourished and healthy looking.

In such cases the answer to just one question often gives all the explanation that I think is needed for the syndrome. This question is "Have any of your relatives suffered from mental disease, and particularly spells of depression?" If any have been so afflicted, the chances are that the woman's distress is her share of the family curse. Often also with an inherited psychopathic makeup the woman wears herself out with poor adjustments to living, with silly worrying and with much fretting against small discomforts.

A NERVOUS BREAKDOWN

It is a distressing fact that today, with all the wonderful diagnostic technics on which we physicians like to rely, one of the most common diseases that we see often fails to get recognized. I refer to the nervous breakdown of one kind or another. The difficulty is that the patient seldom thinks to mention the really important symptoms. Instead, he talks so much about pains and aches and what other physicians diagnosed and prescribed that even a consultant immediately thinks of disease in heart, digestive tract or glands of internal secretion and starts hunting for it with many tests. Unfortunately none of these tests can reveal the

fact that the man is almost out of his mind with nervousness or fatigue or fear of going insane. All that the tests do often is to turn up some unimportant abnormality which causes the physician to assume that the diagnosis has now been made and that no further thought need be given to it. Actually a very different diagnosis would have been made if the doctor had only thought to ask the man if he was working. Then it would have been learned that for months or years he hadn't worked because he couldn't meet people comfortably or stand having them around him. He was too nervous and restless and jittery to sleep or read or even to sit through a movie. Curiously, he who complained only of a little belching or abdominal discomfort did not mention the fact that for months he had been unable to talk business with any one for even a few minutes without getting panicky or faint or sweaty. He didn't confess that he couldn't make decisions, that he couldn't talk to his wife without weeping or that he couldn't concentrate well enough or long enough to read even an editorial in the paper. Obviously the brain of such a man must be badly disorganized and sadly in need of rest.

A few more questions are then needed to help determine whether the nervous breakdown is due mainly to a bad nervous heredity, dissipation, unhappiness, overwork, heavy nervous strain, an insoluble life problem, cerebral arteriosclerosis, a slight stroke, some smoldering infection or a combination of several causes. In most of these cases it is of little use to go searching again and again for some focus of disease, because even if one was to be found it wouldn't be the cause of the breakdown, and in most cases it would be unwise to do any operating until the man was rested and feeling more like himself.

SO-CALLED MUCOUS COLITIS

A considerable number of the women found in the offices of gastroenterologists have a disease which in most cases is easy enough to diagnose from the history alone. They have the irritable bowel syndrome. I do not like to call it spastic colitis because this term often breeds confusion and fear. Usually all the physician need do is to find out that for years the woman has had a sore, constipated and perhaps gassy colon which gets more painful and troublesome whenever she runs into worry or excitement or painful emotion. The woman may complain of attacks of diarrhea, but more careful questioning will show that what she means is that she has to go frequently and pass a little water and mucus and gas. Highly important will be the fact that the discomfort is felt in the lower half of the abdomen. This goes far to rule out disease in the stomach, duodenum or gallbladder.

THE IRRITABLE DIGESTIVE TRACT

Many persons who think they have an ulcer or some disease which could be cured with diet have only an overly irritable and reactive digestive tract. This fact can be ascertained easily by asking a few questions which will show that the distress complained of commonly follows within a few minutes after eating and, more significant yet, within a few minutes after drinking cold water. Sometimes the patient will say that she bloats suddenly after drinking water or taking a cup of tea or some "pop." In such cases the mere distention of the colon with an enema may cause much distress, or the woman may fill with gas or get diarrhea whenever she becomes excited or frightened. Food may go through her within an hour, and a small dose of laxative may act like a drastic purgative. Obviously, if the simple distention of the stomach or bowel by water can cause so much distress, there can be little hope of finding a diet that will be innocuous.

FOOD ALLERGY

Often the present day, long winded study of suspected allergic disturbances could be greatly shortened if only the patient was to be asked to go without any food for twenty-four or forty-eight hours. If this did not promptly relieve the indigestion, flatulence, constant headache, toxic feeling or stuffy nose complained of there could be little hope of finding any diet that would work well. Incidentally, the patient who says he couldn't bear to fast for twenty-four hours shows immediately that either he hasn't any "guts" or his pain cannot be very troublesome. If he promises to fast and then cheats, that also will tell the physician all he needs to know about him.

Usually one can tell the chronic dyspeptic from the allergic simply by asking a few questions. If a person is allergic and knows he must not touch egg white, he will usually say that he cannot eat cake or sherbet or anything containing egg, but the dyspeptic who says that he cannot touch eggs will often say that he can take one if it is boiled hard or beaten up in milk. Evidently, then, it is the appearance of a poorly cooked egg which he does not like. He will say also that he cannot take anything raw or anything acid or anything fried or any pastry. Such generalizations do not mean anything to an allergist and suggest to him that the patient is a fussy, opinionated person who is full of prejudices.

MIGRAINE

Typical of the diseases that are best diagnosed from the history and the appearance of the patient is migraine. All one has to do is to recognize the story of a throbbing unilateral headache, followed by nausea and utter misery, or to see the miserable and apathetic patient in the attack. In typical cases this attack begins with a scintillating scotoma. Just to make it hard the woman will often have, in addition to the migraine, a milder nervous headache and sometimes a nuchal headache due perhaps to sore muscles. In cases of doubt it is helpful to find that near relatives have migraine, that the woman had spells of "bilious vomiting" in childhood, that she was free from the spells during her pregnancies and that she slips into the headaches whenever she gets tense, worried, tired or unhappy, when she is about to menstruate or when she is going to give a dinner party.

For nearly a hundred years it has been known that this disease is an entity, inherited from some ancestor. Its cause is in the brain, and the patients almost always have a peculiar temperament which contributes most to keeping up the trouble. They are nervous, hypersensitive, easily fatigued, worrisome and meticulous persons who take responsibility keenly and are inclined to work too fast and to do too much. Because I have never seen the tendency to the disease permanently eradicated by any abdominal operation I have little desire to make a lot of tests; I would much rather spend what time I can spare talking to the woman: finding out what her sources of strain are, showing her how she can live so as to cut down on the number of spells, and giving instructions as to how to go at relieving the headache the minute it appears.

A QUESTIONABLE BASAL METABOLIC RATE

Many a nervous, wide awake and energetic little woman goes to an internist to say that for a while her doctor treated her for myxedema because one estimate of basal metabolic rate was reported as —35 per cent. Significant then will be the fact that with the taking of thyroid substance she only became so much more jittery than she was before that she had to stop the medication. Fairly obviously she did not need it. The question then is Shall the internist send her for more estimates of the basal rate or shall he spare his overworked laboratory girl? Usually he can spare her. Just let him talk to the woman for a few minutes and he will see that she can't be myxedematous; with her keen mind, mobile face, quick movements and active reflexes she just cannot have a rate of —35 per cent. The calculation must have been wrong.

Well, then, is she perhaps hyperthyroid? Probably not, if her skin is cool and her pulse normal, if she has no tremor, if she does not kick off the bedclothes and if she hasn't been losing weight. Under such circumstances many a wise clinician will not bother to send the patient for a measurement of the basal metabolic rate because he knows it almost certainly will be within the limits of normal. Incidentally, the limits of normal are wider than many physicians think. They are probably somewhere between —18 and +18 per cent. Many thin, frail women have a low basal rate of from —14 to —17 per cent, which is not due to hypothyroidism. Borderline measurements should always be repeated until at least two figures come out close together, and then no conclusion should be based on them which does not fit with the other facts obtained from the history and the physical examination. Any diagnosis based on one laboratory test the result of which does not fit with other facts of observation is usually wrong.

SUPPOSED DISEASE IN THE GLANDS OF INTERNAL SECRETION

Every so often a stout woman comes to an internist asking for treatment for some glandular disease which some one has told her she has. Already she has been treated extensively with hormones derived from the several glands of internal secretion, but she has not gotten better. The wise physician will note at a glance that she is normally feminine in build and appearance; her fat is evenly distributed, and she has no hair in places where it should not be. The fact that she has a normal menstrual cycle will indicate that the pituitary-ovarian mechanism must be functioning fairly well, and after running over in his mind the characteristics of the few known diseases due to a hypofunctioning or hyperfunctioning of the several glands of internal secretion the physician will see that she hasn't any of these syndromes. Then, perhaps, when he finds that obesity runs in her family, he will be satisfied to give her only a reduction diet.

SUPPOSED FEVER

A problem that often takes up much of the internist's time is that of supposed chronic fever. Usually the woman (it is significant that the patient is practically always a nervous woman) has already been subjected to many tests and much treatment for supposed brucellosis. Questioning usually shows that by fever the woman means 99.5 F. on some afternoons. Often it can be noted, and this is highly significant, that on the first day in the office, when the patient was tense and anxious, the temperature, pulse, blood pressure and leukocyte count were up a little, but later, when she calmed down, they all dropped to normal.

To one well acquainted with this syndrome, it will seem probable that, along with an unstable personality, the woman has unstable thermostats in her hypothalamus, and all she needs do is to stop worrying and to throw away her thermometer. Recent studies have shown that tense active persons normally have a temperature ranging around 99.3 F.

A helpful test in these cases is a measurement of the blood sedimentation rate. If this is under 15 mm. in an hour, the woman is not likely to have any serious illness. Another helpful thing to do is to get a scout film of the abdomen, which usually shows that the spleen is normal in size. This tends to rule out brucellosis or other chronic infectious disease. Stereoscopic roentgenograms of the lungs should, of course, be made to help rule out tuberculosis.

THE OLDER MAN OR WOMAN WHO HAS SUDDENLY FAILED IN HEALTH

There is one type of case in which no good physician will want to trust only to a clinical hunch, and that is when a previously healthy person past middle age has just begun to fail and for the first time in his life has either become conscious of his stomach or gotten a pain, passed some blood or lost strength, weight or joy in life. Usually in such cases the cause is something serious, and always it must be searched for with care and pertinacity.

Unfortunately, one fairly common type of disease seen in these older persons who have begun to fail in health is seldom diagnosed correctly because the typical history is not elicited. I refer to intracranial arteriosclerosis with thrombosis of one or more small blood vessels in the brain. The disease should be easily recognizable when the illness comes suddenly at a certain minute of a certain day or when the patient wakes some morning feeling terribly dizzy and perhaps nauseated and confused. It is pathognomonic when, with this, there go changes in character, loss of memory or loss of joy in life and interest in loved ones and friends. Some of the patients lose considerably in weight, and a few become crippled with arthritis.

In those cases in which there was known to have been hypertension it is highly significant that after the dizzy spell the pressure fell decidedly, perhaps to normal, and remained there. This sign is probably pathognomonic. Sometimes the history of a little stroke cannot be obtained because the shutoff in circulation came slowly or at night, but then manifest character changes with loss of memory, a slowing up of the mental processes, an inability to work, loss of proper grooming or the coming of some signs of Parkinson's syndrome will make the diagnosis fairly easy and will show that the disease is in the brain and not in the thorax or abdomen.

RULING OUT CARCINOMA OF DIGESTIVE TRACT

In older persons with failing health it is often necessary to rule out cancer of the digestive tract and here again a few hints may be helpful. Since most cancers of the digestive tube ooze blood, a high hemoglobin reading is encouraging. Since most of these cancers become infected, normal leukocyte and polymorphonuclear cell counts are encouraging as is a low blood sedimentation rate. When six months of illness have passed and symptoms of obstruction have not appeared, this tends to rule out cancer of the small bowel and of

the left half of the colon. A normal liver function test is cheering, as it lessens the likelihood that metastasis has taken place.

A SUPPOSED GASTRIC HEMORRHAGE

Every so often the gastroenterologist sees a man who for months has been undergoing ineffectual treatment for ulcer. The diagnosis was based largely on the history that the man vomited blood or passed a tarry stool. But proper questioning soon shows that the little blood that was brought up was seen only after the patient had been retching for half an hour. This means that it came probably from a small ruptured vessel in the esophagus or stomach. If the stomach had been full of blood coming from an ulcer the story would have been very different. Then the minute he vomited perhaps a pint of bloody material would have come up.

More questioning is likely to throw great doubt on the nature of the black stool. Almost always the passage of tarry stools due to a real hemorrhage greatly weakens the patient. Often he faints on the bathroom floor; he is unable to walk up stairs, and usually he has to take to his bed and stay there for a week or two until some hemoglobin is regenerated and strength returns. Hence when one learns that the patient with a black stool went right on with his work and did not become weak or anemic one must doubt if he ever had a hemorrhage. If more questioning shows that at the time the dark stool was passed he was taking iron or some white powders, probably containing bismuth, it will be even more doubtful if he had any bleeding.

Because the man with an ulcer usually loses his pain for a while after a hemorrhage it is often helpful to ask about this, and if an abdominal discomfort went on unchanged after the passage of a black stool it probably was not due to an ulcer. Another strong indication that a man never had an ulcer is the story, commonly obtained, that a Sippy regimen, well carried out, failed to give any relief. When a man has a tractable ulcer without any complication such as penetration into the head of the pancreas or pyloric obstruction, he ought to get relief as soon as he is put to bed and given frequent feedings.

SUPPOSED PYLORIC OR DUODENAL OBSTRUCTION

A woman may say that she vomits violently in spells, and her physician suspects that she has an ulcer obstructing the pylorus. Or because on one occasion a roentgenologist saw stasis in her duodenum, it is feared that she will have to have a duodenojejunostomy. When, however, questioning shows that the woman never vomits food but brings up only a watery fluid, it will be obvious that her pylorus is open and food is not stagnating in the stomach. When further questioning shows that her spells always start with a unilateral headache it will become apparent that what she has been having are attacks of migraine.

Many a woman who complains of "vomiting" is really regurgitating food the minute she finishes eating, or even before. She has no nausea and does not retch. This trouble is always functional in nature and due to a hereditary predisposition plus nervousness or fatigue or a psychoneurosis. I have never seen it helped by any operation.

ARTHRITIS AND FIBROSITIS

One of the common problems the physician has to deal with every day is that of arthritis and fibrositis. Usually the question uppermost in the mind of the patient is whether he is going to be crippled. If he can be assured that he is not headed straight for a wheelchair he will usually go away happy and willing to put up with his pain and soreness. Often the physician can encourage the man by reminding him that he has been having attacks of stiffness in his joints off and on for most of his life without getting either deformed or crippled. Under these circumstances he will probably recover again.

With arthritic patients one of the most helpful tests is the measurement of the blood sedimentation rate because, if this is less than 10 mm. in an hour, the chances are that the man has fibrositis rather than arthritis, which means that he is never likely to be crippled. Usually sinuses, tonsils and devitalized teeth have been attended to long before the consultant sees the patient and hence about the only place left in which he can hope to find infection is the prostate gland. In older patients with senescent changes in the joints one cannot expect to work much of a miracle by the removal of foci of infection.

THE PATIENT WHO CONTINUES TO HAVE TROUBLE AFTER AN OPERATION FOR ULCER

Often when a patient returns with abdominal pain after gastroenterostomy or subtotal gastrectomy the question is "Has the old ulcer flared up or has a new ulcer formed in the jejunum just below the stoma?" Often the best way of deciding this is to find out if the pain has shifted. If it is in the old place in the epigastrium the chances are that the old ulcer has become active again, but if the pain has moved down to a point a little below and to the left of the navel the chances are that a jejunal ulcer has formed. If the man has recently had a hemorrhage and had never had one before the operation, the chances are large that he has a new ulcer, this time in the jejunum.

THE PATIENT WHO STILL HAS PAIN AND INDIGESTION AFTER CHOLECYSTECTOMY

The first thing to do when a person comes complaining of abdominal distress after cholecystectomy is to find out whether before operation there were any colics or other symptoms strongly indicating the presence of gallbladder disease or whether the operation was done largely because some roentgenologist thought the gallbladder was slightly abnormal. If the symptoms originally were those of a psychoneurosis and the operation did no good, the chances are that it was ill advised, and in attempting to make a diagnosis the physician can leave out of consideration residual disease in the bile ducts. It is helpful to find out whether the gallbladder contained stones. If it did and if the patient is now complaining of attacks of pain, perhaps with chills and fever and slight but definite jaundice, the chances are that a stone was left in the common bile duct. But if at operation there were no stones in the gallbladder there is little likelihood that now there is one in the duct. Whenever the patient says that he has had jaundice he should be cross examined, because often it turns out that all he had was a questionable sallowness.

COMMENT

It is suggested that "for the duration" overworked physicians spare overworked roentgenologists and laboratory technicians and make more of their diagnoses quickly with the help of a few shrewd questions. A number of hints have been given for the making of such quick diagnoses. Today many diagnoses could be made with greater accuracy if based on a good history rather than on tests; in many conditions the diagnosis can be made from the history alone.

ERYSIPELOTHRIX RHUSIOPATHIAE SEPTICEMIA: DIAGNOSIS AND TREATMENT

REPORT OF FATAL CASE OF ERYSIPELOID

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PHILADELPHIA

The cutaneous disease that Rosenbach in 1884 designated erysipeloid is now known to be an infection caused by Erysipelothrix rhusiopathiae, the organism of swine erysipelas. Erysipeloid occurring at the site of injury, usually the hand, in abattoir workers, fish handlers and retail butchers, is a common occupational disease. Erysipeloid resulting in blood stream infection and death is rare.

The case reported here concerns a butcher who cut his finger while working. Although we did not see him at that time, evidence suggests that a severe form of erysipeloid resulted from this injury. Blood stream infection with Erysipelothrix rhusiopathiae ensued, from which he died six months after the injury. The organism was recovered from antemortem blood culture. Symptoms of the septicemic form of the infection in man are not described in medical textbooks. The clinical picture is somewhat comparable to the infection in swine, which is well known to veterinarians.

REPORT OF CASE

Clinical History.—J. Z., a white man aged 46, a retail butcher, came under our observation when he was admitted to the medical service of Dr. David W. Kramer at the Philadelphia General Hospital on Sept. 18, 1941.

On April 15, 1941 the left thumb was lacerated by a meat bone. No particular attention was paid to the injury until three days later, when the thumb began to swell, compelling him to stop work on April 21. The physician who treated him reported extensive infection of the thumb, periostitis of both bones and cellulitis of the soft tissues. The site of infection was incised and drained, but with little improvement. A roentgenogram of the thumb on May 7 disclosed necrosis of the base of the distal phalanx. Another physician advised amputation, which was not performed. He reported an infectious arthritis of the interphalangeal joint with erosion of the distal phalanx. On May 16 it was reported that the thumb was considerably swollen. There was an open area, the remains of previous incision, with serous discharge but no pus. The surrounding tissues were not inflamed and there was no evidence of extension of infection. The patient's general condition was good; there were no systemic symptoms. The thumb gradually improved; complete healing ensued, enabling him to return to work on June 9. He worked regularly until August 15, when he stopped work because he felt weak and sick. He continued to feel weak and spent most of the time in bed. A physician who visited him reported that he was anemic and had fever and a purpuric eruption and advised admission to the hospital.

Physical Examination.—The patient was well developed and well nourished. He appeared ill and anemic. The skin was yellowish white. Scattered over the extremities and trunk there were a number of purpuric macules varying in size from 0.5 to 4 mm.; the color varied from shades of red to purple. There was a scar on the left thumb but no evidence of infection. The tongue and mucous membranes were pale. The heart was not enlarged to percussion. The heart sounds were soft and distant with normal rhythm. There was a blowing systolic murmur heard at the apex. The liver was enlarged two fingerbreadths below the costal margin. The edge of the spleen was palpable.

The blood pressure was 150 mm. of mercury systolic and 70 mm. diastolic, the pulse rate 90, the temperature 100 F. and the respiratory rate 25.

Laboratory Examination.—Repeated examinations of the urine revealed 2 to 1 plus albumin, occasional casts and white blood cells and on one occasion red blood cells. The Fishberg test revealed fixation of the specific gravity at 1.010 to 1.011. On admission the erythrocyte count was 2,000,000 and the hemoglobin content 49 per cent (7.15 Gm.). The erythrocyte level decreased to 1,560,000 on September 25 and to 1,000,000 on October 2. The white blood cells numbered 8,800. The differential count was 74 per cent neutrophils, 16 per cent lymphocytes and 10 per cent monocytes. The sugar content of the blood was 87 mg. per hundred cubic centimeters and the total cholesterol content was 136 mg. with 26 mg. (19 per cent) of cholesterol esters. Blood Wassermann and Kahn tests gave negative results. Agglutination tests for typhoid, paratyphoid, Brucella abortus and Pasteurella tularensis, and the Weil-Felix reaction revealed negative results. The blood urea nitrogen gradually rose from 50 mg. per hundred cubic centimeters on admission to 90 mg. on October 13. Of four blood cultures three showed a small, slender, gram positive bacillus.

Fig. 1.—Purpuric spots and purplish disciform lesions. The eruption resembled erythema multiforme more than any other skin disease (see figure 6 for comparison).

Course of Illness.—The pulse remained elevated and the temperature spiked between 99 and 102 F. The heart became enlarged and a short diastolic apical murmur was heard when the patient was in the left lateral position. The standard urea clearance test diminished to 8 per cent. The purpuric-like macules on the trunk faded, followed by a new outbreak of purplish macules, with smooth, nonelevated surfaces, on the dorsa of the hands and on the forearms. Here the lesions were disciform, varying in diameter up to about 5 cm. (fig. 1). Some became confluent; others were somewhat rounded with irregular borders. Around the elbows and ankles the eruption consisted of discrete spots. There were purpuric-like linear lesions that followed some creases on the palms and palmar surfaces of the fingers (fig. 2); concomitant with these palmar lesions there were swelling, tenderness and pain of the carpal and metacarpal joints of both hands. The patient also complained of pain in other joints. Transfusions and sulfathiazole (the blood concentration was 12 mg. per hundred cubic centimeters) were without effect. The patient became progressively weaker and died on October 17.

Clinical Diagnosis.—This was subacute bacterial endocarditis. In the terminal stage of the disease, Erysipelothrix rhusiopathiae septicemia was suggested. The organism recovered from blood culture was identified as Erysipelothrix rhusiopathiae after death.

From the Medical Department, Philadelphia General Hospital, and the Research Institute for Cutaneous Medicine.

Necropsy.—This was performed twenty hours after death. The body was well developed but poorly nourished and showed neither icterus nor peripheral edema. The previously described cutaneous changes were not obscured by livor mortis. The pleural, pericardial and peritoneal surfaces were apparently normal. The lungs, aorta, gastrointestinal tract, pancreas,

Fig. 2.—Purplish, linear lesions in some creases of the palms and palmar surfaces of the fingers.

extrahepatic biliary passages, lower urinary tract, genitalia and adrenals were not remarkable on gross examination.

The heart showed moderate hypertrophy of the left ventricular myocardium and a moderate degree of dilatation of each ventricle. Adherent to one aortic leaflet there was a pinkish yellow friable vegetation[1] (¼ inch in diameter). The other valves and the coronary arteries were not remarkable.

The spleen was four times the normal size and presented a moderately firm recent infarct which took the form of a transverse band 1 inch wide.

The liver was somewhat enlarged and cut with decreased resistance. The inferior edge was rounded. On the cut surface

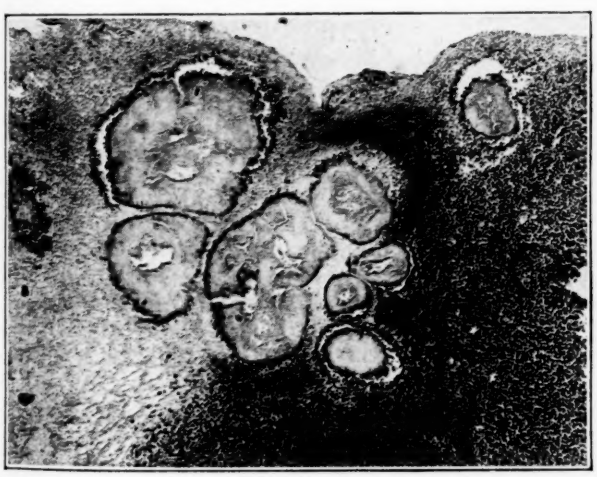

Fig. 3.—Section of endocardial vegetation showing large amorphous masses in the center, pus cells and fibrin. Hematoxylin and eosin stain. Reduced from a photomicrograph with a magnification of 65 diameters.

the normal hepatic architecture was obscured by a diffuse, irregular pale pink and yellow mottling.

The kidneys were large and swollen. On both the subcapsular and cut surfaces there were scattered petechiae.

1. Since death resulted from accidental injury, necropsy was performed by the coroner's physician. No culture was made of the endocardial vegetations.

Anatomic Diagnosis.—This was acute bacterial endocarditis (aortic valve), cardiac hypertrophy and dilatation, recent infarct of the spleen, acute hepatitis with fatty change and acute focal glomerulonephritis.

Microscopic Observations.—Heart: A section through the involved aortic cusp, stained with hematoxylin and eosin, showed the leaflet definitely thickened by layers of fibrin in various stages of organization. The endothelium was disrupted at the site of attachment of a vegetation. The latter was composed, in some parts, of closely packed polymorphonuclear leukocytes with a few large mononuclear cells; in other areas there were fine and coarse wavy threads of fibrin, small foci of degenerated erythrocytes and an occasional pus cell. Scattered through the vegetation, especially in its periphery, were numerous doughnut shaped, amorphous, gray masses with strongly eosinophilic margins (fig. 3). After staining with the Weigert modification of the Gram stain, these masses and the tissue surrounding them showed many gram positive rods and threads scattered singly, in clumps and in linear formation (fig. 4).

Spleen: Two thirds of the section showed extensive areas of necrosis. The viable splenic tissue, the pulp, showed occasional histiocytes filled with blood pigment and a few giant cells, probably megakaryocytes.

Liver: Most of the liver cells were distended by large globules of fat. In numerous foci, well defined acute inflammatory infiltrations occurred in and around the periportal connective tissue.

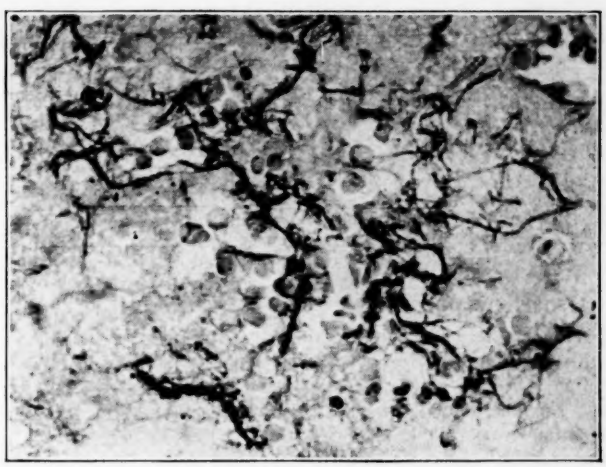

Fig. 4.—Section of endocardial vegetation showing Erysipelothrix rhusiopathiae. Slight nodular irregularities of some filaments suggested beading. Gram-Weigert stain. Reduced from a photomicrograph with a magnification of 598 diameters.

Kidney: Many glomeruli were unusually cellular; several were the seat of recent thrombosis with a moderately severe localized leukocytic infiltration surrounding many of the necrotic foci. Occasionally there was a localized proliferation of the capsular epithelium with the formation of an epithelial crescent. Few of the tubules contained erythrocytes.

Microscopic Diagnoses.—Aortic Valve: Acute bacterial endocarditis with bacterial colonization.

Spleen: Recent septic infarction.

Liver: Focal acute hepatitis, fatty metamorphosis.

Kidney: Focal acute embolic glomerulonephritis.

BACTERIOLOGY

The organism obtained from an antemortem blood culture was identical morphologically, culturally and serologically with a known strain of Erysipelothrix rhusiopathiae.[2]

Morphology.—The organism was a slender, straight or slightly curved rod from 1 to 1.5 microns long, arranged singly or in small groups or in chains. It was nonmotile, non-spore

2. This strain in the laboratory of the Research Institute for Cutaneous Medicine was obtained from a lesion of "diamond skin" disease in 1941. The original culture has since been maintained in lyophilic form. Morphology and virulence of the organism have remained unchanged. This method is a convenient one for maintaining a virulent shock strain of Erysipelothrix rhusiopathiae.

forming and was gram positive. In old broth cultures the organism grew in longer forms.

Cultural Characteristics.—The organism grew well on blood agar. Scanty growth was obtained on heart infusion broth (Bacto) but grew well in this medium (turbidity in twenty-four hours) with the addition of ascitic fluid (10 per cent). Better growth was obtained on a modified heart infusion broth (Burky and Henton [3]). Liquefaction of gelatin did not occur. Voges-Proskauer and methyl reactions were negative. Indole and hydrogen sulfide were not produced.

Virulence.—White mice inoculated intraperitoneally with 0.1 cc. of a 1:10 dilution of a forty-eight hour culture on Burky's medium were moribund in two to three days. The organism was recovered in pure culture from the heart blood.

Serum Reactions.—The organism was strongly agglutinated by a concentrated antiserum. Dr. W. F. Verway of Sharpe & Dohme also performed agglutination tests with positive results with some serums; agglutination resulted in dilutions reaching 1:1,600. Two rabbits that had been previously inoculated intravenously with 2 cc. of a forty-eight hour broth culture were immunized as follows: Injections of 0.5, 1, 2 and 4 cc. of forty-hour living broth cultures of organisms from our patient were given intravenously at four day intervals. Serum from these animals agglutinated a known strain of Erysipelothrix rhusiopathiae in dilutions reaching 1:2,560. The same antigen was not agglutinated by normal rabbit serum used as a control.

Biochemical Characteristics

	Our Organism	Known Strain of Erysipelothrix Rhusiopathiae	Russell and Lamb [4]	Bergey [5]
Dextrose	Acid *	Acid	Acid	Acid
Maltose	.....	.....	.....	.....
Sucrose	.....	.....	.....	.....
Lactose	Acid	Acid	Acid (litmus milk)	Acid
Mannitol	.....	.....	.....	Acid (late)
Xylose	Acid	Acid	.....	.....

* Acid, but no gas.

Biochemical Reactions.—The accompanying table shows results of fermentation reactions with a known strain and with an organism from our patient. For comparison, fermentation reactions given by Russell and Lamb [4] and by Bergey [5] are shown. It will be seen from the table that fermentation reactions with the known strain and with the organism from our patient were identical. Compared with the results of Russell and Lamb [4] and of Bergey [5] there was a discrepancy in reaction with mannitol and xylose. It is to be noted, however, that fermentation reactions, as reported by different investigators working with different strains, have varied. Some report a variable reaction with xylose and others an acid reaction with xylose and with mannitol.[6]

In addition to our study the organism was identified as Erysipelothrix rhusiopathiae by the Pathological Division of the Bureau of Animal Industry of the United States Department of Agriculture in Washington, D. C. Dr. H. W. Schoening of this division reported: "Both cultural examination and mouse and pigeon inoculations proved the organism to be typical of Erysipelothrix rhusiopathiae."

THE ORGANISM

Bergey [5] classified Erysipelothrix rhusiopathiae among the "higher bacteria" of the order of Actinomycetales. There are three generally accepted strains, human, swine and mouse, although the organism has been found in a considerable assortment of animal species either as a harmless parasite or as a pathogen. Its wide dissemination is extraordinary. It is found wherever nitrogenous substances are decomposing. In putrid material the organism is capable of retaining its viability and virulence for months. In certain environments it exists in the soil as a saprophyte. The organism has been recovered from the slime of fish,[7] from houseflies [8] and from putrefying horseflesh.[8] The organism is not the cause of any known disease of fish. It appears that the slime of fish attracts the organism from refuse thrown in the water and other decaying matter and that change of environment increases the virulence.[9]

The virulence varies considerably in different species and in the same species. The organism has a capacity to change suddenly from a harmless saprophytic to a pathogenic parasite. This transition occurs particularly in swine. Man is relatively immune, particularly when the organism enters through the gastrointestinal tract. Pigeons and white mice are highly susceptible to artificial infection; rabbits and guinea pigs, considerably less.

THE INFECTION IN SWINE

The infection is one of the most serious diseases of swine. It is manifested in three forms: A mild form ("diamond skin" disease) is characterized by slight constitutional symptoms and the presence of quadrangular, rectangular and disciform lesions, bright red spots and ill defined blotches. The lesions, becoming confluent, form bizarre designs constituting an eruption pattern peculiar to this disease. This form is the more frequent in the United States. Frequently the cutaneous lesions are not visible until after the animal has been slaughtered, scalded and cleaned. A severe, frequently fatal, form is characterized by constitutional symptoms of septicemia, the presence of diffuse areas of erythema and at times vesicles, petechia and necrosis. A chronic form is characterized particularly by polyarthritis and at times symptoms referable to a vegetative type of endocarditis. Endocarditis, when occurring, usually involves the mitral valves, and the vegetations tend to attack and invade the endocardium.[10]

THE INFECTION IN MAN

The most common form of the infection in man is erysipeloid. Other forms are less well known and somewhat correlate manifestations of the disease in swine. Erysipeloid is a mild, rather localized cutaneous infection occurring usually at the site of injury, invariably the hand (fig. 5). Infection frequently arises from occupation (88 of 100 cases reported by one of us [11]) in persons handling fish, the products of swine, dead matter of plant and animal origin and other sources. Pain, intense swelling, purplish red erythema at the site of inoculation and absence of suppuration are distinctive features. The disease may be wrongly diagnosed as pyogenic infection.

3. This culture is a modification of the one described by Huntoon and contains (*a*) fresh ground beef heart, eggs, distilled water, (*b*) neopeptone (Difco), sodium chloride, distilled water (Burky, E. L., and Henton, H. D.: Am. J. Ophth. **19**: 782 [Sept.] 1936).

4. Russell, W. O., and Lamb, M. E.: Erysipelothrix Endocarditis: A Complication of Erysipeloid, J. A. M. A. **114**: 1045-1050 (March 23) 1940.

5. Bergey, D. H.: Bergey's Manual of Determinative Bacteriology, ed. 4, Baltimore, Williams & Wilkins Company, 1934, p. 933.

6. Karlson, A. G., and Merchant, I. A.: The Cultural and Biochemical Properties of Erysipelothrix Rhusiopathiae, Am. J. Vet. Res. **2**: 5-10 (Jan.) 1941.

7. Brunner, G.: Experimentalle Untersuchungen über Schweinerotlaufbakterien bei Fischen, Zentralbl. f. Bakt. (pt. 2) **97**: 457, 1938. Schoop, Gerhard: Rotlaufbakterien auf Seefischen, Deutsche tierärztlichen Wchnschr., 1936, number 21, pp. 371-375.

8. Kondo, S., and Sugimura, K.: Experimental Studies on Swine Erysipelas Bacillus Found in Fishes, J. Jap. Soc. Vet. Sc. **14**: 111-135, 1935.

9. Klauder, J. V.; Righter, L. L., and Harkins, M. J.: A Distinctive and Severe Form of Erysipeloid Among Fish Handlers: Report of Clinical and Laboratory Studies; Demonstration of the Bacillus of Swine Erysipelas, Arch. Dermat. & Syph. **14**: 662-678 (Dec.) 1926.

10. Coombs, C. F.; Hadfield, G., and Henson, G. E.: Endocarditis of Swine Erysipelas and Its Relation to Cardiac Infections of Man, Proc. Roy. Soc. Med. (Sect. Compar. Med.) **19**: 13 (Feb.) 1926. Van Es and McGrath.[18]

11. Klauder, J. V.: Erysipeloid as an Occupational Disease, J. A. M. A. **111**: 1345 (Oct. 8) 1938.

Arthritic symptoms, particularly of the hand, may accompany erysipeloid and may persist after disappearance of the cutaneous lesions. In this event joints other than the hand may become affected.[12]

Generalized infection with polyarthritis and constitutional symptoms (with negative blood culture) has been reported.[13]

A few cases of septicemia with endocarditis have been reported. Russell and Lamb's [4] case, however, is the first one in which endocarditis was proved at necropsy, with recovery of the organism from the heart blood and endocardial vegetation. They appropriately write that "the apparent rarity of the disease, as suggested by the literature, with only 3 questionably identified cases, is probably not entirely justified. While endocarditis in swine is an infrequent complication of swine erysipelas, it is observed and generally recognized by veterinarians. For this reason the opinion is ventured that more cases in man will be recognized in the future, as the prevalence of erysipeloid infection is rapidly being publicized in the medical literature."

The report of Russell and Lamb [4] concerned a lobster fisherman who presented a hospital course of sepsis and endocarditis. No port of entry of infection could be demonstrated and there were no cutaneous lesions. Death occurred after three months of illness. Antemortem blood culture revealed Erysipelothrix rhusiopathiae. Vegetative endocarditis of the aortic and mitral valves was found at necropsy.

In the case reported by Fiessinger and Brouet,[14] infection occurred from eating salt pork. The initial symptoms were malaise, anorexia (diarrhea was absent) and an eruption. The latter was described as red spots on the trunk and extremities becoming confluent in places, forming large plaques. The fever ranged from 37.6 C. to 39 C. (99.7 F. to 102.2 F.) and there was a painful swelling of one knee. The ears were swollen, purplish red [15] and painful, resembling a traumatic hematoma, and purpuric spots appeared on the face. There was severe anemia, leukopenia with the monocytes reaching 22 per cent. Blood culture revealed Erysipelothrix rhusiopathiae. The patient rapidly improved after administration of immune serum. Soon after discharge from the hospital, acute nephritis and cardiac failure ensued with fatal outcome.

Prausnitz's [16] patient was a 10 year old child. There were bluish red spots on different parts of the body, joint pains and a clinical picture of sepsis with endocarditis. Blood culture disclosed Erysipelothrix rhusiopathiae. Death resulted after six months of illness. Necropsy was not performed.

The 2 cases reported by Gunther,[17] to which Russell and Lamb refer as questionably identified cases of septicemia with endocarditis, occurred in veterinarians accidentally inoculated with culture of the organism. Bacteriologic studies were lacking, however, in both cases.

12. Further discussion may be found in Kartal, S.: Die chronische Erysipeloidarthritis beim menschlichen Schweinerotlauf, Deutsche Ztschr. f. Chir. **244:** 332-334, 1935. Rahm, H.: Zur Schweinerotlauf arthritis der Fingergelenke, Klin. Wchnschr. **3:** 224-226 (Feb. 5) 1924. Klauder.[11]

13. Klauder, J. V.: Generalisiertes Erysipeloid: Bericht über einen 29 Monate dauernden Fall mit Sektionsbefund, Dermat. Wchnschr. **98:** 613-619 (May 19) 1934.

14. Fiessinger, Noël, and Brouet, Georges: Rouget du porc chez l'homme à forme porcine et d'origine digestive, Presse méd. **42:** 889 (June 2) 1934.

15. Similiar involvement occurs in swine.

16. Prausnitz, C.: Bakteriologische Untersuche über Schweinerotlauf beim Menschen, Zentralbl. f. Bakt. (pt. 1) **85:** 362, 1921.

17. Gunther, G.: Schweinerotlauf beim Menschen, Wien. klin. Wchnschr. **35:** 1318, 1912. Die Infektion eines Tierarztes mit tötlichem Ausgange, Tierarztl. Zentralbl. **26:** 141, 1903.

COMMENT

The infection of the thumb apparently was a severe form of erysipeloid. When we first saw the patient only a scar remained. It was reported that there was periostitis and necrosis of the bone. Reexamination of the roentgenogram showed unmistakable evidence of necrosis of the bone. This complication of erysipeloid is not recorded as occurring in the medical literature. Despite this, it is reasonable to ascribe necrosis of bone to the organism, causing blood stream infection. Periostitis and osteitis, however, occur in the infection in swine.[18] Nonsuppuration at the site of injury is against pyogenic origin of bone involvement in our case. The injury to the thumb and the patient's occupation were the only evidences of the port of entry of Erysipelothrix rhusiopathiae infection.

Failure to demonstrate the organism in culture taken from the endocardial vegetations is compensated by its demonstration in stained sections from such vegetations (fig. 4). The organism seen as filaments in the section had slight nodular irregularities suggesting beading. In old cultures, especially on broth, beading of the filamentous forms of the organism occurs.

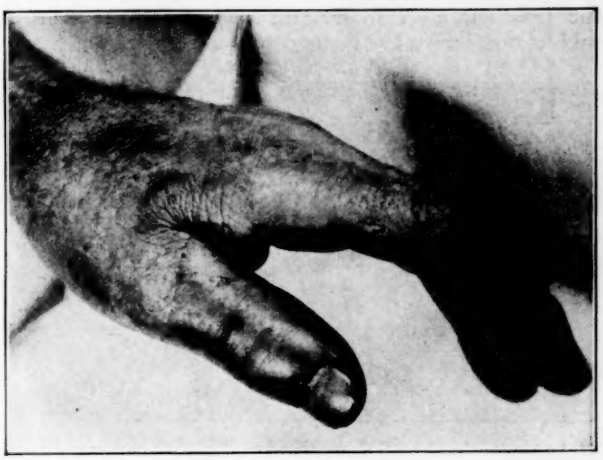

Fig. 5.—Erysipeloid of eight days' duration in an abattoir worker who cut his thumb while working. This is the most common form of infection with Erysipelothrix rhusiopathiae in man. Pain, tense swelling, purplish red erythema and absence of suppuration are distinctive features.

The course and symptoms of the infection were similar in many respects to those in the case reported by Fiessinger and Brouet.[14]

DIAGNOSIS AND TREATMENT OF ERYSIPELOTHRIX RHUSIOPATHIAE SEPTICEMIA

There are three cardinal symptoms of the infection in swine—an eruption, symptoms referable to the joints and endocarditis. This triad, although occurring in man, is not diagnostic. Moreover, diagnosis before endocarditis develops is desirable. The eruption and monocytosis probably have more diagnostic value, since other symptoms of the infection in man are common to any septicemia. Diagnosis is facilitated through the following considerations:

Anamnesis.—The history of erysipeloid or of local cutaneous infection occurring in the course of an occupation or from a source entailing exposure to the organism. Illness after eating partly cooked pork or its product, fish or tainted food.

18. Van Es, L., and McGrath, C. B.: Swine Erysipelas, Research Bulletion 84, College of Agriculture, University of Nebraska.

Eruption.—Purplish red, hematoma-like swelling of the ears with necrosis (Fiessinger and Brouet's patient) is a distinct symptom if frozen ears are excluded. The reported occurrence of "purpuric spots," "bluish red" lesions and "red spots" have limited diagnostic value. The formation of disciform lesions (fig. 1) and large plaques lacking characteristic features of erythema multiforme is of more diagnostic value (fig. 6). Purplish linear lesions in creases of the palms and palmar surfaces of the fingers are unique cutaneous lesions (fig. 2). The character of the rash and its distribution in our patient resembled the purpuric and petechial eruption that characterizes the extrameningeal types of acute and chronic meningococcic infection.[19]

Monocytosis and Listerella Monocytogenes Infection in Man.—In the few reported cases of septicemia in man there was an increase in the monocytes. Such increase is of diagnostic significance, since few diseases cause monocytosis in man, and is consistent with the following observations: In Barber's[20] study it was noted that among features common to both Listerella monocytogenes and Erysipelothrix rhusiopathiae was the production of monocytosis in rabbits. In some rabbits the increase in monocytes reached 30 per cent.

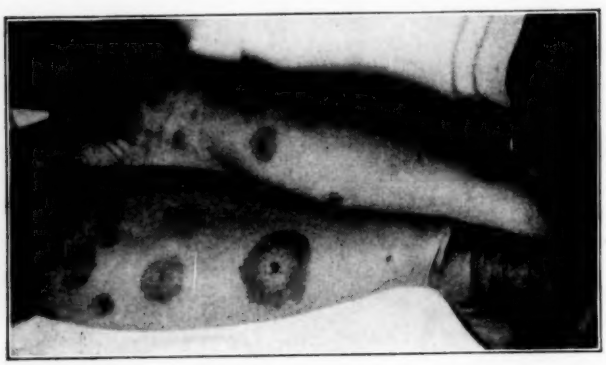

Fig. 6.—Erythema multiforme, for comparison, showing bluish red, disciform lesions with central clearing (target shape) and with concentric rings (erythema iris). The central clearing and concentric rings, characteristic features of erythema multiforme, were lacking in the eruption of our patient.

Seastone[21] observed that inoculation of chickens, rabbits and guinea pigs caused monocytosis. Egehøj[22] noted monocytosis in Erysipelothrix rhusiopathiae infection in swine.

Listerella monocytogenes and Erysipelothrix rhusiopathiae are similar morphologically and culturally. One difference, however, is that Listerella is motile whereas Erysipelothrix rhusiopathiae is nonmotile. Both organisms are the cause of widespread infection in animals. The common result of Listerella infection in cattle[23] and sheep[24] is encephalomyelitis. "In rabbits, guinea pigs, chickens, septicemia is observed. In rodents, a monocytosis is considered pathognomonic. A similar monocytosis occurs in chickens but has not been observed in ruminants."[25] In man,[26] Listerella causes meningoencephalitis, and the organism has been recovered from the blood of patients with infectious mononucleosis.[27]

In view of the difference in the clinical picture of systemic infection with Listerella and with Erysipelothrix in man, there is less likelihood of confusing the two infections despite the presence of monocytosis and a preliminary blood culture report of a gram positive slender rod.

Agglutination Test.—This has not been studied in septicemia in man. Grey, Osteen and Schoening[28] studied the value of the agglutination test in the diagnosis of the infection in swine. In the acute stage they observed that, although the test may be positive, this was quite variable. More uniform results were obtained in animals with joint lesions visible on clinical examination. Karlson and McNutt[29] observed that microscopic agglutination tests conducted on swine dead or dying of the septicemic form of the disease gave negative results.

In erysipeloid, Bierbaum and Gottron[30] observed that agglutination did not exceed dilutions of serum ranging from 1:20 to 1:40, in which dilutions the serums of normal persons caused agglutination.

Intracutaneous Test.—Biberstein,[31] notably, studied the diagnostic value of an intracutaneous test in erysipeloid and in experimentally produced infection in laboratory animals. His studies were conducted with an antigen comprising "fresh" vaccine and "fresh" filtrate made from a twenty-four hour bouillon culture of Erysipelothrix rhusiopathiae and "old" vaccine and "old" filtrate made from a ten day old bouillon culture. Best results were obtained with "old" filtrate, which gave positive results in 88 per cent of 17 persons with active erysipeloid and in 50 per cent of 6 persons who had recovered from erysipeloid. With the same filtrate, 5 per cent of 60 normal persons gave a positive reaction.

Recovery of Organism.—In addition to blood culture, it is to be expected that the organism can be recovered by culturing an excised piece of affected skin. By this method it has been demonstrated in "diamond skin" disease and in erysipeloid and was demonstrated also in Klauder's[13] patient, who had generalized cutaneous lesions as long as fifteen months after onset of the infection.

Erysipelothrix rhusiopathiae septicemia should be considered when the clinical diagnosis is subacute bacterial endocarditis with a blood culture report of a gram

19. Mitchell-Heggs, G. B.: Skin Manifestations of Meningococcal Infection, Brit. J. Dermat. & Syph. **54:** 283-307 (Nov.) 1942. Comparable to demonstration of meningococcus in smear obtained by friction over the petechiae or purpuric lesions and in microscopic section of such lesions, it would be interesting to know whether Erysipelothrix rhusiopathiae could be similarly demonstrated.

20. Barber, Mary: A Comparative Study of Listerella and Erysipelothrix, J. Path. & Bact. **48:** 11 (Jan.) 1939.

21. Seastone, C. V.: Pathogenic Organisms of the Genus Listerella, J. Exper. Med. **62:** 203-212, 1935.

22. Cited by Barber.[20]

23. Schwarte, B. S., and Biester, H. E.: Listerella Infection in Cattle, Am. J. Vet. Research **3:** 165-176 (April) 1942.

24. A common symptom in sheep is a circular movement, giving rise to the name "circular disease."

25. Graham, R.; Dunlap, G., and Levine, N.: Studies on Listerella: III. Experimental Listerellosis in Domestic Animals, Cornell Veterinarian **30:** 268-290 (July) 1940.

26. Wright, H. A., and MacGregor, A. R.: A Case of Meningitis Due to Bacterium Monocytogenes, J. Path. & Bact. **48:** 470-472 (March) 1939. Schultz, E. W.; Terry, M. C.; Brice, A. T., Jr., and Gebhardt, L. P.: Listerella Monocytogenes, a Cause of Meningoencephalitis in Man, Proc. Soc. Exper. Biol. & Med. **38:** 605-608, 1938. Webb, R. A., and Barber, Mary: Listerella in Human Meningitis, J. Path. & Bact. **45:** 523-539, 1937.

27. Nyfeldt, A.: Etiologie de la mononucléose infectieuse, Comp. rend. Soc. de biol. **101:** 590-592, 1929; Klinische und experimentele Untersuchungen über die Mononucleosis infectiosa, Folia haemat. **47:** 1-144, 1932. Pons, C. R., and Julianelle, L. A.: Isolation of Listerella Monocytogenes from Infectious Mononucleosis, Proc. Soc. Exper. Biol. & Med. **40:** 360-361 (March) 1939.

28. Grey, C. G.; Osteen, O. L., and Schoening, H. W.: Swine Erysipelas: The Agglutination Test for Its Diagnosis, and a Report on a Study of Arthritis in Swine, Am. J. Vet. Res. **2:** 74-76 (Jan.) 1941.

29. Karlson, A. G., and McNutt, S. H.: A Microscopic Agglutination Test for the Diagnosis of Swine Erysipelas, J. Infect. Dis. **64:** 49-51 (Jan.-Feb.) 1939.

30. Bierbaum, K., and Gottron, H.: Zur Kenntnis des Erysipeloids Rosenbach unter besonderer Berücksichtigung seiner Beziehungen zum Schweinerotlauf, Dermat. Ztschr. **57:** 1-27 (Oct.) 1929.

31. Biberstein, H.: Untersuchungen über Hautreaktionen bei menschlichem und tierischem Rotlauf, Arch. f. Dermat. u. Syph. **168:** 146-160, 1933.

positive rod, provided the organism is nonmotile and non-spore forming. Other descriptive names that may be given the organism before identification are gram positive rodlike bacilli, coccoid or streptobacilli. In such event, in order to avoid delay, administration of immune serum should be considered before identification of the organism is established.

Treatment.—Immune serum should be employed in massive doses in a short space of time.[32] The following treatment is suggested: 100 cc. intravenously every twelve hours for the first four to six injections, further treatment depending on the clinical results.

It is to be noted that sulfathiazole in our case and sulfanilamide in Russell and Lamb's case were ineffective. In a study [33] by one of us, it was observed that the sulfonamide compounds were ineffective in the treatment of experimentally produced infection in mice (survival of 12—5 per cent) and also ineffective when combined with subcurative doses of immune serum.

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Clinical Notes, Suggestions and New Instruments

ERYTHROBLASTOSIS FETALIS (HEMOLYTIC DISEASE OF THE NEWBORN) OCCURRING IN ONE OF TWINS

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There has recently been called to my attention a case of erythroblastosis fetalis which occurred in 1 infant of twins, while the other twin is perfectly normal. In view of the recent interest in the blood factor Rh as the etiologic agent of erythroblastosis, I feel that this case is of sufficient importance to warrant publication. Complete blood Rh studies have been carried out in this case and they add further support to the thesis that erythroblastosis is the result of isoimmunization of an Rh negative mother by an Rh positive fetus. Considerable evidence [1] has been brought forth to prove the truth of this statement.

In a recent publication [2] it was suggested that the term "hemolytic disease of the newborn" be used rather than "erythroblastosis fetalis," since the erythroblastosis seen in the infant is merely one of the results of the underlying cause, which is hemolysis of the fetal red blood cells. Furthermore, erythroblastosis may not be a prominent feature of the disease in certain cases, whereas hemolysis is always present. Henceforth therefore in this discussion I shall use the term "hemolytic disease of the newborn" instead of "erythroblastosis fetalis."

REPORT OF CASE

Mrs. A. DeH., a woman aged 41, secundipara, tertigravida, had given birth to living, normal infants as the result of her first two pregnancies, which were full term. The third pregnancy terminated in 1941 by abortion at 2½ months. The most recent pregnancy, the fourth, was a twin pregnancy complicated by hydramnios. The expected date of confinement was April 3, 1943. On March 11 labor was induced by her attending physician at another hospital by rupturing the membranes of one of the twins. After an uneventful labor the patient delivered twin male infants, the first, baby A, weighing 5 pounds 13 ounces (2,635 Gm.) and the second, baby B, weighing 6 pounds 7 ounces (2,925 Gm.). The placentas were typical of a double ovum gestation, there being two separate placentas and sets of membranes. Baby B looked perfectly normal at birth and continues to be a healthy infant. Baby A, on the other hand, was quite pale, cried weakly and had a dusky icteric tint to the skin. Within twenty-four hours after birth the infant was definitely icteric and looked poorly. When the infant was 34 hours old it was given a transfusion with 50 cc. of the father's blood. Four hours later, just as a second transfusion was being prepared, the infant died.

TABLE 1.—*Results of Determinations*

	Group	Rh	Anti Rh
Father	A	+	
Mother	A	0	+
Normal twin	A	0	
Twin with hemorrhagic disease of the newborn.	A	+	0

The blood Rh determinations on the family showed the mother and the normal twin to be Rh negative and the twin with hemorrhagic disease of the newborn and the father to be Rh positive.

A blood count on this baby at the time of birth showed a red blood cell count of 2.9 million and a hemoglobin value of 62 per cent. A blood smear showed 28 per cent erythroblasts of all varieties. I was given blood on the mother and father as well as the twin babies for Rh determination. The findings are shown in table 1.

Autopsy on baby A showed findings typical of hemolytic disease of the newborn. In addition to the icterus there was slight edema present in the subcutaneous tissues. The liver weighed 175 Gm., with 78 Gm. being the normal weight. The spleen was also somewhat enlarged. Sections of these organs showed an unusually large number of active hemopoietic centers. Hemopoiesis was also noted in the adrenals. Unfortunately the placentas were not saved for study.

COMMENT

This case seems to present clearcut evidence that the Rh factor is the etiologic agent in hemolytic disease of the newborn. From table 1 we note that the father is Rh positive and the mother is Rh negative. One of the double ovum twins is Rh negative and is therefore normal. The other twin is Rh positive and died of hemolytic disease of the newborn. It would seem uncontroversial that the Rh factor from the diseased twin crossed the placenta, thus gaining access to the maternal circulation and there stimulating the production of anti Rh isoantibody, which in turn crossed the placenta into the fetal circulation and there destroyed the fetal red blood cells. Evidence to support his statement can be gained from the fact that the anti Rh isoantibody was found in the maternal circulation (table 1). This is demonstrated by the agglutination of the cells of the affected infant when these cells are set up in an agglutination test with the maternal serum.

It has been stated that the Rh antigen crosses the placental barrier from the fetus to the mother and there stimulates antibody production. Just how this process takes place is still a matter for speculation. It has been stated that defects in the placenta allow the fetal red cells carrying the Rh factor to enter the maternal circulation, and Javert [3] has reported finding such defects in placentas from cases of hemolytic disease of the newborn. A more plausible mechanism would seem to be the passage across the placenta of the breakdown

32. Erysipelothrix rhusiopathiae antiserum can be obtained from Sharpe & Dohme, Inc., Philadelphia; Pitman-Moore Company, Indianapolis; Lederle's Laboratories, Inc., Pearl River, N. Y.; Jensen-Salsberry Laboratories, Kansas City, Mo., and other manufacturers of biologic products in veterinarian medicine.

33. To be published.

From the Department of Obstetrics and Gynecology, University of Rochester School of Medicine and Dentistry.

Dr. F. S. Fumia, the attending physician, allowed the author to study this case. Dr. Frederick Summerill, pathologist and director of laboratories at Highland Hospital, Rochester, N. Y., helped in obtaining detailed information.

1. Levine, Philip; Burnham, Lyman; Katzin, E. M., and Vogel, Peter: The Role of Isoimmunization in the Pathogenesis of Erythroblastosis Fetalis, Am. J. Obst. & Gynec. **42**: 925-937 (Dec.) 1941. Potter, E. L.; Davidsohn, Israel, and Crunden, A. B.: The Importance of the Rh Blood Factor in Erythroblastosis, ibid. **45**: 254-261 (Feb.) 1943. Kariher and Spindler.[2]

2. Kariher, D. H., and Spindler, H. A.: Erythroblastosis Fetalis and the Blood Factor Rh, Am. J. M. Sc. **205**: 369-376 (March) 1943.

3. Javert, C. T.: Further Studies on Erythroblastosis Neonatorum of Obstetric Significance, Am. J. Obst. & Gynec. **43**: 921-940 (June) 1942.

products of physiologic fetal red blood cell destruction. The Rh factor then may be in a molecule small enough to get through the placental barrier.

It will be recalled from the case history that the diseased infant was only slightly icteric at birth but within twenty-four hours of birth became definitely so. This is not an infrequent observation, and it would seem to be somewhat contradictory to our views of isoimmunization of the mother being the particular factor in the disease. On the contrary it lends support to this idea. We tend to think that the fetal red cells hemolysis stops abruptly the minute the infant is delivered. However, this is probably not the case, since the infant still carries antibody, which it obtained from the mother, for a short time after birth. This antibody will continue to react on the infant's red cells, just as it did when the infant was in utero. However, now there is no means for the elimination of the end products of red cell destruction and they accumulate in the infant's body, whereas, while the fetus was in utero, these end products were probably eliminated from the fetus by means of the interchange of substances in the placenta.

TABLE 2.—*Results of Mating (After Levine [5])*

Mother Rh— rh rh	Father Rh+ Rh rh
Offspring	
50% Rh rh Rh+	
50% rh rh Rh—	

About 50 per cent of offspring from mating of Rh negative mother and heterozygous Rh positive father will be Rh+, and 50 per cent will be Rh—.

The answer as to how 1 fetus of twins could be Rh positive and the other Rh negative can be found in the work of Landsteiner and Wiener [4] on the heredity of the Rh factor. In my case the mother is Rh negative and hence would have the genotype rh rh. The father is Rh positive and could have one of two genotypes, Rh Rh or Rh rh. If his genotype was Rh Rh, then all the offspring of this mating would be Rh positive, since all the progeny would carry the dominant gene Rh. However, we know that 1 of the twins is Rh negative; therefore the father's genotype must be Rh rh and would be termed heterozygous. Table 2 shows the results of mating an Rh negative mother and a heterozygous Rh positive father. We see that there is an equal chance of getting an Rh positive and an Rh negative infant in the progeny. In my case of double ovum twins, it merely happened that the two genetic types occurred in the same pregnancy instead of in succeeding pregnancies, as is the more common occurrence.

4. Landsteiner, K., and Wiener, A. S.: Studies on an Agglutinogen (Rh) in Human Blood Reacting with Anti Rhesus Sera and with Human Isoantibodies, J. Exper. Med. **74**: 309-320 (Oct.) 1941.

5. Levine, Philip: Erythroblastosis Fetalis and Other Manifestations of Isoimmunization, West. J. Surg. **50**: 468-475 (Sept.) 1942.

FATAL BULLOUS DERMATITIS FOLLOWING ADMINISTRATION OF SULFADIAZINE

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MEDICAL CORPS, ARMY OF THE UNITED STATES

Sulfadiazine is probably the least toxic of the sulfonamide compounds in common use today and causes the lowest incidence of drug eruption. Ensworth and his associates [1] reported only 4 cases of drug rash in a series of 239 cases of pneumonia treated with sulfadiazine. In a series of 660 treated with sulfadiazine by Dowling and Lepper,[2] 10 instances of dermatitis occurred. These were scarlatiniform, morbilliform and urticarial, and all subsided on cessation of administration of the drug.

However, more serious dermatologic complications have been reported. Raffetto and Nichols [3] reported a nearly fatal pemphigus-like rash occurring in a 10 year old girl following sulfadiazine therapy.

REPORT OF CASE

D. J., a white man aged 20, was admitted to the Station Hospital March 4, 1943 complaining of sore throat and cough. On physical examination a small area of consolidation was found in the base of the left lung posteriorly. X-ray examination confirmed the diagnosis of bronchopneumonia of the left lower lobe. Urinalysis was negative. The blood count revealed 4,750,000 red blood cells per cubic millimeter and 8,800 white blood cells per cubic millimeter with 78 per cent polymorphonuclear leukocytes.

Sulfadiazine was started on March 4 with 2 Gm. as an initial dose and 1 Gm. every four hours. This was discontinued on March 8. It was started again the same day when the patient's temperature rose to 102 F. Physical and x-ray examination revealed the spread of the pneumonia to the left upper lobe. On March 12 the physical and x-ray examinations revealed considerable resolution of the pneumonia, and sulfadiazine was discontinued. The blood sulfadiazine level was 9.8 mg. per hundred cubic centimeters on that day. The patient had received a total of 49 Gm. of sulfadiazine in the period of eight days. He appeared somewhat confused at times during the period in which he was receiving sulfadiazine. He vomited twice but retained fluids well. The patient had also received occasional doses of codeine sulfate 0.06 Gm. and capsules containing acetylsalicylic acid, acetophenetidin and caffeine.

On March 13, the day after administration of sulfadiazine was stopped (and nine days from the time it was started), a faint erythema appeared on the face and trunk. There was a mild conjunctival injection. The temperature rose to 104 F. but dropped to normal the following day. On March 14 the eruption was generalized and consisted of discrete and confluent pink pea sized macules. It closely resembled the rash of measles. The tip of the spleen was felt at this time. On March 16 there was a bright red erythema involving the entire body with 10 to 12 flaccid bullae scattered on the trunk and extremities. The bullae varied from ½ to 3 inches in diameter and contained clear fluid. When the skin was pinched gently a new bulla was formed (positive Nikolsky sign). There were many ruptured bullae in the mouth and extensive denudation of the bulbar and palpebral conjunctivas. On March 17 no sulfadiazine was detected in the blood, the nonprotein nitrogen was 33.6 mg. per hundred cubic centimeters and urinalysis revealed a trace of albumin and an occasional granular cast and red blood cell. The white blood count was 12,000 per cubic millimeter with 79 per cent polymorphonuclear leukocytes. New bullae continued to appear. The patient was extremely toxic and his temperature varied from 101 to 105 F. He was given large amounts of fluid including blood plasma and massive doses of ascorbic acid, nicotinic acid, thiamine hydrochloride and liver extract. The patient died on March 18.

COMMENT

The character of the eruption and its onset nine days after sulfadiazine therapy was started make it highly probable that it was a toxic manifestation of sulfadiazine medication. The resemblance to pemphigus was striking, although a definite erythema was present in areas not involved by bullae. This case shows that an erythematous eruption appearing after sulfadiazine therapy may be the first manifestation of a more serious dermatitis. Although sulfadiazine was not given after the eruption appeared (and not even a trace could be detected in the blood five days after cessation of the drug) the dermatitis continued to become more severe.

SUMMARY

A case of fatal, bullous dermatitis with involvement of the oral and conjunctival mucosae occurred after sulfadiazine therapy.

From the Station Hospital, Camp Croft, South Carolina.

1. Ensworth, H. K.; Kalkstein, Mennasch; Barefoot, S. W.; Liebmann, James, and Plummer, Norman: Sulfadiazine in Pneumonia, Am. J. M. Sc. **204**: 179 (Aug.) 1942.

2. Dowling, H. F., and Lepper, M. H.: Toxic Reactions Following Therapy with Sulfapyridine, Sulfathiazole and Sulfadiazine, J. A. M. A. **121**: 1190-1194 (April 10) 1943.

3. Raffetto, J. F., and Nichols, Stanley: A Nearly Fatal Reaction to Sulfadiazine in a Ten Year Old Girl Involving Skin, Eyes and Oropharynx, J. Pediat. **20**: 753 (June) 1942.

Special Articles

MEDICAL AND HOSPITAL MATERNITY AND INFANT CARE

FOR WIVES AND INFANTS OF ENLISTED MEN

EDWIN F. DAILY, M.D.
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WASHINGTON, D. C.

The Congress has recently appropriated $4,400,000 for continuing into the fiscal year beginning July 1, 1943 grants to states to provide medical, nursing and hospital maternity and infant care for wives and infants of enlisted men in the armed forces of the United States under plans developed and administered by state health agencies and approved by the chief of the Children's Bureau.

This program, which received its first special appropriation in March 1943, is now operating in thirty-seven states, Hawaii, Alaska and the District of Columbia. The health agencies of several of the remaining eleven states [1] are, at the time this is written, completing their plans for administering these programs.

Thirty-three state health agencies reported 11,586 authorizations for medical and hospital care under this program during the month of June. More than 95 per cent of these authorizations were for maternity care and less than 5 per cent for pediatric care. The average amount obligated for the medical and hospital care of each case was approximately $75. Reports received from thirty-eight state health agencies estimate that during the month of July maternity care will be authorized under this program for more than 20,000 wives of enlisted men.

The policies of administration which are of particular interest to physicians as summarized from the state plans approved by the Children's Bureau include the following:

WHO IS ELIGIBLE FOR THESE SERVICES?

The wife and infant of any enlisted man serving in the Army, Navy, Marine Corps or Coast Guard in the fourth, fifth, sixth or seventh pay grade are eligible as long as similar services are not readily available through medical or hospital facilities of the Army or Navy. (The Congress has recently made eligible for these services, when circumstances require, the wives and infants of enlisted men in the first, second and third pay grades. Ninety-three per cent of enlisted men are in the fourth, fifth, sixth and seventh pay grades.)

WHERE MAY WIVES OF ENLISTED MEN SECURE APPLICATION FORMS?

Forms for requesting care have been made as readily available as possible for these families from state and local health and welfare agencies, American Red Cross chapters, antepartum clinics, military posts and local practicing physicians.

HOW ARE REQUESTS FOR AUTHORIZATION MADE?

The wife enters identifying data on the application form and takes it to the physician (private or clinic) of her choice. The physician completes the form and forwards it to the state director of maternal and child health (or his deputy), requesting authorization to provide the medical care needed at the rates of payment established by the state health agency. Physicians participating in the programs agree to provide the authorized services without charge to the patient or her family. Physicians and hospitals receive payment for authorized services from the state health agency only. Hospital care is authorized only when medical care is also authorized except when medical care is provided without cost to the patient or her family. For example, when a commissioned medical officer in the Army or Navy provides the medical care, the payment for hospital care can be authorized under the program. Payment is not made for services rendered to the patient prior to the date authorization was requested, except for emergencies. Care is usually authorized by the state health agency in the state in which the attending physician practices, irrespective of whether the patient lives in the same state or in another state. The state health agency reviews the request for authorization and usually within twenty-four hours notifies the patient, physician and hospital whether authorization is granted. Each case is referred to the local health department for antepartum and postpartum public health nursing services.

WHAT SERVICES ARE AUTHORIZED AND WHAT RATES OF PAYMENT HAVE BEEN ESTABLISHED BY THE STATE HEALTH AGENCIES?

1. Complete medical care by the attending physician throughout pregnancy, labor and the postpartum period. Payments to the attending physicians for these services, including care of complications and operations performed by him, are made on a uniform inclusive rate basis in each state, varying between states from $25 to $50. In a few states the amount paid specialists in obstetrics may vary from one fourth to one third more than the amount paid general practitioners.

2. Medical care of sick infants during their first year of life. Payments to attending physicians are usually made on a visit basis with an average maximum of $12 for the first week of illness and $6 for each additional week of illness.

3. Hospital care as requested by the attending physician (if the hospital has been inspected and approved as meeting the requirements of the state health agency for maternity and pediatric service). Hospitals are usually paid at the inclusive ward cost per patient day as calculated annually by each hospital.

4. Consultation by recognized specialists. Lists of qualified consultants have been established in the states, and general practitioners are urged to call them for any serious complication. Consultants are paid at rates varying from $5 to $10 for bedside consultation, and up to $25 to $50 when they perform major surgery at the request of the attending physician.

5. Bedside nursing care at home or in the hospital for seriously ill patients.

6. Ambulance service and unusually expensive drugs, under some of the state programs.

The extent to which services are made available in each state and additional information relative to policies of administration may be secured from each state health agency.

The state health agencies have shouldered the responsibility for putting this program into operation without appropriation of additional administrative funds because the Congress did not make funds available for administration either by the state agencies or by the Children's Bureau. All expenditures from the appropriation are

1. Colorado, Georgia, Louisiana, Massachusetts, North Dakota, Ohio, Oregon, Pennsylvania, Tennessee, Texas and Virginia.

for medical, hospital and bedside nursing care. The wholehearted cooperative spirit which state agencies have shown in formulating plans and directing their execution has contributed greatly to the success in establishing and maintaining these programs. The cooperation of practicing physicians and hospital administrators, on whom much of the burden of the program ultimately rests, has made it possible for most of the state health agencies to establish these statewide services for the wives and infants of enlisted men in the armed forces.

PROBLEMS OF HOSPITAL ORGANIZATION PRESENTED DURING THE DETROIT RACE RIOT

WILLIAM E. ABBOTT, M.D.
AND
JOHN WINSLOW HIRSHFELD, M.D.
DETROIT

The recent race riot presented the staff of the City of Detroit Receiving Hospital with the problem of caring for 433 new patients in twenty-four hours. In addition, the load of new patients during the six to twelve hour periods immediately preceding and following these twenty-four hours was heavier than usual. We do not intend to give a detailed account of the diagnosis and treatment of these cases but rather to discuss the organization for the handling of such a large number of cases.

Patients Admitted to Emergency Ward on June 21 (Midnight to Midnight)

Stabbings	56	
Gunshot	65	
Beatings	312	
Total casualties		433
Admitted to hospital		101
Treated in emergency ward and discharged		332
Died from wounds		17

The rioting began late Sunday, June 20, 1943 but patients were not admitted in large numbers until midnight. Of the 433 admitted to the emergency ward (table) from midnight Sunday to midnight Monday, June 21, 101, or approximately 24 per cent, were hospitalized. The remaining 332 patients required some sort of treatment, in many instances the suturing of multiple lacerations. Many of these patients who were severely injured but sent home after treatment would under less pressing circumstances have been hospitalized.

Weapons confiscated from the rioters included shotguns, rifles, revolvers, knives, razors, ice picks, blackjacks, meat cleavers, axes, hatchets, baseball bats and clubs, bricks, stones, hammers, bowling pins and bayonets. The injuries inflicted from this wide assortment of weapons were varied and often complex. During the twenty-four hour period twenty major operations were performed on patients suffering from bullet or stab wounds of the abdomen, thorax or extremities (including compound fractures) or suffering from depressed skull fractures. In addition, approximately seventeen fractures were reduced.

Seventeen patients died during the twenty-four hour period. Of these, 14 were either dead on admission or died within ten to twenty minutes. Hence treatment was of no avail. Two of the 3 patients who survived for a longer period had serious depressed fractures of the skull. The other sustained a gunshot wound of the abdomen and did not respond sufficiently to shock treatment to permit exploration. Three patients succumbed postoperatively between 2 a. m. and 7 a. m. on Tuesday, June 22. It is possible that 1 or 2 of these 3 patients might have survived if better organization had permitted more complete postoperative observation.

One of the first persons to be killed was a physician attempting to make a house call in the district where the rioting was taking place. The cars of several other physicians were badly damaged by the rioters. Hence very few of the attending staff were able to come in, and the medical care was given almost entirely by the house staff of the Receiving Hospital.

Early in the course of the emergency it became apparent that the hospital would have to be cleared of all patients who could be moved. We therefore submitted a list to the hospital authorities, who in turn arranged for the patients' safe transportation. To increase further the capacity of the hospital, emergency beds were set up in lecture rooms and clinics. The quick exhaustion of the available blood and plasma in the hospital necessitated an additional amount, which was obtained from the American Legion plasma bank. A very large amount of surgical materials was required for treatment of the patients, and by the end of the twenty-four hour period the supply of certain items had been almost exhausted.

Since the Detroit Receiving Hospital is primarily designed to handle emergencies, it was felt previous to the riot that its organization was adequate to cope with a large influx of seriously injured patients. Consequently no special plan had been made to handle such a disaster. Although there was some confusion and duplication of effort, the organization was fairly efficient, and by and large the patients were well handled. A few patients were temporarily misplaced, and in at least 1 instance we feel that this misplacement may have contributed to the patient's death. The experience demonstrated clearly that even in a hospital devoted largely to emergency work the usual routine is not adequate to cope with a large influx of injured patients. If such an emergency is to be handled with proper efficiency, it is imperative to have a well organized plan of action. A schematic representation of such a plan is shown in the accompanying chart.

Because of the difficulty in getting to and from the hospital, it is necessary to make the institution almost entirely self sufficient. The methods outlined by Faxon and Churchill [1] which were employed at the Massachusetts General Hospital during the recent Cocoanut Grove disaster would not have been entirely satisfactory in our emergency because they depended on summoning outside assistance. In the second place, disasters resulting from fire and explosion are usually self limited, while in rioting it is possible that the flow of casualties may continue for some time as in actual warfare.

Our experience, however, emphasizes the importance of some of the features of Faxon and Churchill's plan:

1. The immediate examination and segregation of the living and the dead and of major and minor cases.

From the Department of Surgery, Wayne University College of Medicine and the Surgical Service of Receiving Hospital, Detroit.

1. Faxon, N. W., and Churchill, E. D.: The Cocoanut Grove Disaster in Boston, J. A. M. A. **120:** 1385-1388 (Dec. 26) 1942.

Because of the complexity of injuries it is important that this function be performed by a physician of considerable experience.

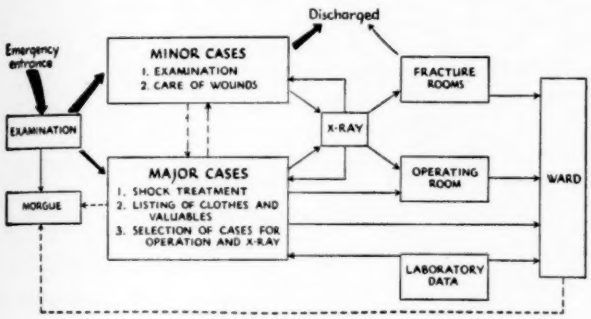
2. The organization and division of the hospital personnel into teams to care for the registration of patients, the identification and tagging of living and dead, the care of clothing and valuables, the thorough examination of patients and the care of minor wounds, the treatment of shock and the selection of patients for operation and x-ray examination, operative and postoperative care of patients and the performance of essential laboratory tests.

3. The concentration of serious casualties into one group so that they can be under constant supervision.

The experience gained during the recent race riot emphasized the following additional problems:

1. During an emergency of long duration there is need for replenishing linens and other supplies. If because of street rioting or the disruption of transportation it is impossible to bring additional aid to the hospital, volunteer workers should be assembled in previously designated spots for the preparation of materials and supplies to be taken to the hospital under suitable military protection.

2. Any such plan should provide relief for the hospital personnel so that food and rest may be obtained.



Plan for handling a large number of injured patients.

3. While riots and such disasters are rare, when they do strike it is frequently necessary to send equipment from one hospital to another. The multiplicity of design of transfusion sets makes such an interchange difficult and time consuming. It would therefore be desirable to standardize equipment to make it interchangeable.

4. It is well known that many hospitals have not been laid out in a fashion commensurate with the most efficient handling of patients. Under normal conditions the increased amount of transportation necessitated by inefficient hospital layout is not noticed, but the sudden influx of a large number of seriously injured patients immediately demonstrates the desirability of having the distance between emergency ward, x-ray department, operating rooms, recovery ward and the plasma bank as short as possible.

In conclusion we should like to reemphasize the following points:

1. There is need for a well rehearsed and well organized plan to cope with disasters, as time is not available for organization when an emergency occurs.

2. The plan should organize the available hospital personnel into teams for definite duties at specific locations.

3. The plan should provide for the classification and segregation of patients so that the teams can care for them with the utmost efficiency.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENT.

AUSTIN E. SMITH, M.D., Secretary.

ENTERIC COATED DOSAGE FORMS OF DIETHYLSTILBESTROL NOT ACCEPTABLE FOR N. N. R.

In the consideration of various submitted dosage forms of diethylstilbestrol, the Council reached the conclusion that there was no conclusive evidence to show that the use of enteric coated dosage forms decreased the incidence of such symptoms of toxicity as nausea, vomiting and the like. Interested firms were informed of this decision of the Council and none offered any evidence to establish the need for marketing diethylstilbestrol in enteric coated dosage forms as superior to the plain dosage forms, from the standpoint of stability, therapeutic efficiency or incidence of toxicity symptoms.

The Council therefore authorized publication of the foregoing statement to place itself on record in this matter.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTIONS WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

DIETHYLSTILBESTROL (See the Supplement to New and Nonofficial Remedies, 1942, p. 27).

The following additional dosage forms have been accepted:

E. R. SQUIBB & SONS, NEW YORK

Tablets Diethylstilbestrol: 0.25 mg.

LEDERLE LABORATORIES, INC., PEARL RIVER, NEW YORK

Ampuls Diethylstilbestrol (in sesame oil), 0.5 mg. per 0.5 cc.: 0.5 cc.

Ampuls Diethylstilbestrol (in sesame oil), 0.1 mg. per cc.: 1 cc.

Capsules Diethylstilbestrol: 0.1 mg., 0.5 mg. and 1.0 mg.

THEOPHYLLINE WITH ETHYLENEDIAMINE (See New and Nonofficial Remedies, 1942, p. 332).

The following dosage form has been accepted:

THE WARREN-TEED PRODUCTS COMPANY, COLUMBUS, OHIO

Tablets Aminophyllin: 0.1 Gm.

IMMUNE GLOBULIN (HUMAN) (See New and Nonofficial Remedies, 1942, p. 480).

The following dosage forms have been accepted:

PITMAN-MOORE COMPANY, INDIANAPOLIS

Immune Globulin (Human): 2 cc. and 10 cc. diaphragm stoppered vials. Preserved with merthiolate 1:7,500.

NICOTINIC ACID (See New and Nonofficial Remedies, 1942, p. 561).

THE WARREN-TEED PRODUCTS COMPANY, COLUMBUS, OHIO

Tablets Niacin: 50 mg.

NICOTINIC ACID AMIDE (See New and Nonofficial Remedies, 1942, p. 562).

The following dosage form has been accepted:

BURROUGHS WELLCOME & CO., INC., NEW YORK

Hypoloid Nicotinamide Injection, 100 mg. per cc.: 5 cc. vial. Preserved with 0.5 per cent chlorobutanol.

NIKETHAMIDE (See Supplement to New and Nonofficial Remedies, 1942, p. 17).

The following dosage forms have been accepted:

FLINT, EATON & COMPANY, DECATUR, ILL.

Ampuls Solution Nikethamide 25% W/V: 2 cc. and 5 cc.

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SATURDAY, JULY 31, 1943

PRACTICE OF RADIOLOGY AND HOSPITAL SERVICE PLANS

Among the problems especially considered by the House of Delegates at the meeting of the American Medical Association in Chicago in June, few have aroused more interest or concern than the place of radiology in new forms of hospitalization insurance as well as its place in routine hospital service. The question was brought before the House as a result of three resolutions introduced at the Atlantic City session in 1942. These resolutions were referred to the Board of Trustees for clarification as to existing relations between physicians and hospitals. The supplementary report of the Board of Trustees pointed out that all the questions involved in the same or similar form had previously been considered and acted on by the House of Delegates. Specific citations were made to the previous actions of the House on this subject.

The reports were assigned by the speaker of the House of Delegates to the Reference Committee on Reports of Board of Trustees and Secretary. The reference committee, after reviewing the two supplementary reports of the Board of Trustees, made the following recommendations:

A. That the House emphatically reiterate that it disapproves the injecting of a third party into the personal relationship of the patient and the physician, and that hospitals should not be permitted to practice medicine.

B. That the practice of radiology, pathology and anesthesiology is the practice of medicine just as much as is the practice of surgery or internal medicine, and that it is only a short step from including the first three in a medical service plan to including the whole field of medicine in such a plan.

C. That the public should be educated to realize that the hospital created monopoly control of radiologic or any service as a source of profit beyond the normal provision for replacement, department development and proper proportion of over-all costs of operation of the hospital should not be permitted, nor can the hospital rightfully use per diem charges against all the hospital patients to support a radiologic or other department devoted to creating bargains in radiologic or other services in order to make hospital group insurance more attractive. To permit either will result in decrease of the quality of service and increased cost to the patient.

D. The medical profession must watch with care all proposed plans for medical service and endeavor to prevent the acceptance of any plan which includes medical service under the control of the hospital.

E. The effectiveness of this program can be attained only if constituent state medical associations and component county medical societies use their influence on hospitals in their respective localities and exercise control over the local members of the medical profession.

F. The public must be educated on what it will mean to them in the way of inferior medical care if these dangerous trends are not curbed.

G. In the relationships of the medical staff and the board of directors of a hospital there should be no intermediary. The staff should have direct access to the board.

H. The Board of Trustees should continue its conferences with national hospital associations and should also endeavor to enlist the support of special medical organizations in education both of the profession and of the public.

The Board of Trustees in general and Dr. Sensenich and Dr. Irons in particular should be commended for the tremendous amount of time and effort which they have given in preparing their very informative report.

Your reference committee recommends that the House of Delegates of the American Medical Association urge the American Hospital Association to withhold approval of the uniform comprehensive Blue Cross contract proposed by the Hospital Service Plan Commission of the American Hospital Association which includes certain medical services as a part of hospital care and which, if adopted as recommended by the said commission, would virtually compel the addition of medical services to the benefits of those Blue Cross plans and now accede to the demands of the American Medical Association by confining their benefits to hospital services.

In presenting this report to the House of Delegates, Dr. Louis H. Bauer, the chairman of the reference committee, made some interesting comments which should be considered carefully by every physician. These supplementary reports of the Board of Trustees present an analysis of current trends in the nature of medical practice which may have a profound effect on the whole future of medical service. The reference committee said:

> Unless the medical profession as a whole is willing to devote at least the same amount of time and effort in studying the report and correcting the dangers pointed out therein as the Board of Trustees has in compiling it, then we might as well "throw in the sponge" now and consent to lay domination of the practice of medicine.

In the report of the reference committee it was indicated that the "Blue Cross" plans to give medical service with or without the approval of the medical profession. This prediction has already been demonstrated to be a practice in many parts of the country. An announcement just made by the Associated Hospital Plan in New York City states plainly the intention and the conditions under which services will be rendered. The report of the reference committee recognizes the bald outlines of the situation when it says "The fact that the House of Delegates on numerous occasions has declared against the selling of medical service by hospitals has not stopped the practice." The

treatment recommended for the cure of this unfortunate situation is also succinctly stated by the reference committee when it says "National approval or disapproval of any practice is a waste of time unless the state and county organizations will see that the dicta of the national body are carried out in the small localities."

The majority of roentgenologists of the United States and their national organizations are convinced that the subscribers' contract in hospitalization insurance should exclude all medical services and that contract provision should be limited exclusively to hospital facilities. The action of the House of Delegates taken in 1934 emphasized that all features of medical service in any method of medical practice should be under the control of the medical profession and that hospital service and medical service should be considered separately. Again in 1936 the House of Delegates emphasized its interpretation of this point of view by saying, in accepting the report of a reference committee:

> If hospital service is limited to include only hospital room accommodations, such as bed, board, operating room, medicines, surgical dressings and general nursing care, the distinction between hospital service and medical service will be clear.

In the report of the reference committee this year, this point is further stressed in paragraphs C, D and G, cited in this editorial. These paragraphs indicate the technics by which those who are concerned may aid in reversing or inhibiting a trend which is apparently now well under way in regard to radiologic practice. Education of the public as to the significance of radiologic practice is important in this direction. Doubtless few of those who obtain the services of radiology in hospitals realize that in many institutions the radiologist is working for a small salary and the hospital is deriving a considerable profit from his professional practice. In other institutions what amounts to virtual fee splitting between the hospital and the radiologist is routine technic. Certainly it is not to the interest of the patient, who must be given first consideration, that the necessity for radiologic study of his case should be made the occasion for providing excess income for the hospital. If the trend is to be controlled, every new arrangement between a hospital and a radiologist and every new plan for a prepaid medical service should be carefully scanned by the county medical society in the area concerned to determine whether or not it violates the fundamental tenets that have been so often iterated and reiterated by the House of Delegates of the American Medical Association. The danger to the sick does not lie in the collection of income for the hospital or the radiologist; it is in the inevitable deterioration that must come in any form of medical service when its practitioners are placed on a basis in which the quality of the service rendered is secondary to the price charged or the method by which the service is supplied.

THE TREATMENT OF TUMORS WITH ESCHAROTICS

A report in a recent issue of the *Journal of the Missouri State Medical Association* by Ackerman and Eberhard [1] calls attention again to the dangers of the use of escharotic pastes in the treatment of cancer. The 39 patients who constitute the basis for their report were treated previous to their admission to the Ellis Fischel State Cancer Hospital by various charlatans who used the paste treatment. Nineteen of the patients had received treatment at Dr. Nichols' Sanatorium, Savannah, Mo. This institution was investigated and its practices were condemned by THE JOURNAL in 1933. The lesions of the 39 patients treated with paste included 23 which were located on the skin of the face and the lip, 2 on the skin of the hand, 1 on the vulva, 1 on the cervix and 12 on the breast.

The deplorable results of the treatment may be best surmised from the consideration of the 12 patients with breast tumor. Ten of these showed evidence on admission to the State Cancer Hospital of local recurrence and metastasis. Two of the patients with lesions of the breast did not have evidence of tumor but showed absence of the breast and extensive surrounding disfigurement. The clinical histories of these 2 patients suggested that the original lesion was in all probability benign.

Ackerman and Eberhard raise the question whether "chemosurgery"—a method advocated by Mohs—has any place in the treatment of tumors. Mohs [2] in 1941 published an enthusiastic report on the treatment of 440 patients with primary carcinoma located on the face, eyelids, lips, nose, ear, parotid gland, penis, breast, vulva and vagina. The treatment consisted in the application of a zinc chloride paste, which was followed twenty-four hours later by the surgical removal of that part of the tumor which was "fixed" by the zinc paste. A further application of the escharotic paste was practiced until careful microscopic control of the underlying tissue established the total destruction of the malignant growth. This rather painstaking piece of clinical investigation failed to arouse much interest on the part of the medical profession. Ackerman and Eberhard believe that this chemosurgical method accomplishes nothing that cannot be equally well, or better, done by irradiation or surgery. They do not believe that the method has a practical place in the treatment of superficial lesions readily controlled by irradiation or surgery or of deep seated visceral tumors. They feel that it certainly should never be used in the treatment of breast tumors. The method at best can hardly compete with the precision and effectiveness of modern radiation therapy.

1. Ackerman, L. V., and Eberhard, T. P.: The Treatment of Tumors by Escharotics, J. Missouri M. A. **40**: 163 (June) 1943.
2. Mohs, F. E.: Chemosurgery: A Microscopically Controlled Method of Cancer Excision, Arch. Surg. **42**: 279 (Feb.) 1941.

POSTWAR PLANNING FOR CANCER CONTROL

What can be done to control cancer more and more effectively in the years to come? Unremitting promotion of research on cancer, better education about cancer, more facilities for diagnosis and treatment of cancer—the basic elements in control of cancer—should greatly improve the situation.

The only hope of solving fundamental problems of cancer lies in research. But the immediate needs of the cancer patient are not met with the promises of research. The patient must be treated as well as possible with the means at hand. Consequently clinical research on cancer—observational, diagnostic, surgical, radiologic—must be intensified. Here is a vast field for continued progress by clinicians and pathologists. An urgent need is research into the incidence and characteristics of cancer in different areas and environments. Studies must be made of social and economic aspects with a view to providing adequate services for all types of patients. What are the trends and needs of cancer in a given city, community or geographic area? Plans should be made to answer such questions on the basis of results of local studies, and ways should be devised to meet the needs by the organized cooperation of the agencies concerned, medical, health and social.

The means at hand for the immediate control of cancer are the application of knowledge to its prevention and its best treatment as early as possible. The first step toward diagnosis must be taken by the patient. At present he cannot be sought out as in tuberculosis. There is no accepted test of immunity or susceptibility to cancer. The earliest time when cancer can be treated is, most always, when the patient comes to the physician of his own will; often this is late. A personal knowledge of cancer by every one, an understanding of its earliest manifestations, is a vital factor for more efficient control. The delay in the treatment of cancer, the weeks and months that only too commonly intervene between the first symptoms and treatment, emphasize the need of planning for more and better education.

Does cancer education as now conducted teach as many people as it should and is the education sufficiently continuous and personalized? In cancer of the uterus and of the breast, education appears to be reducing the time between the first signs of the disease and treatment as reflected in the reduction in the rates of cure and of death of those cancers. In other accessible cancer, for example the larynx, the delay is still far too long in many cases.

Lack of early action by the patient is not, however, the only difficulty in control of cancer. There may also be lack of competent treatment within easy reach. In cancer, self-supporting patients of moderate means may need help as do the indigent. The many cases of accessible, curable cancer that somehow slip into as yet incurable stages everywhere demonstrate the needs for earlier and better treatment of cancer, needs that can be met only by careful planning by states and communities.

On every practitioner in every branch of clinical medicine rests the responsibility of finding cancer in his patients when it is present and of doing what he can to prevent cancer by the elimination of "irritative" and inflammatory conditions. The education of physicians about cancer will remain the duty of medical schools, hospitals, tumor clinics, medical organizations, medical publications and governmental agencies. The plans for cooperation in these matters must recognize the tendency of diagnosis and treatment of cancer to develop into a specialty or specialties requiring special training and special facilities.

The organization of encouragement and facilities for periodic health surveys for cancer in general and particularly for cancer of the uterus, the breast and the stomach demands careful planning. Group examinations may provide better possibilities for prevention and early diagnosis than are otherwise available for many people. The cost of expert periodic examinations decreases with increase in the number of subjects examined, since it permits better utilization of time and materials. The manifest usefulness of diagnostic and preventive cancer clinics, when properly organized, should lead to the consideration of plans for their establishment in areas where the need is manifest.

The problem of cancer among veterans of the war needs special study. A permanent, closed group of this type offers suitable conditions for systematic control by continuous personal education, by periodic examinations and by early diagnosis and treatment. According to William H. Donner [1] an average of twenty-two veterans of the first world war entered hospitals of the Veterans Administration each day in 1941 with cancer. Donner says that "it is only reasonable to expect that, twenty or twenty-five years from now, about forty-five veterans of the second world war will daily enter Veterans hospitals with new cases of cancer." Already cases of cancer of the breast in women on war service have come to the attention of the Veterans Administration, which faces the unique opportunity to institute systematic, personalized cancer control on a gigantic scale under the most favorable auspices.

In all plans for the control of cancer among various groups of our population the medical profession must play a conspicuous role. In the absence of special facilities the burden rests particularly on the general practitioner, the public health officials, the pathologists, the surgeons and experts in radiology. Scientific planning can determine just how the most efficient utilization of personnel and materials is to be secured.

1. International Cancer Research Foundation, Report for 1942, p. 11.

Current Comment

TOXICITY OF INSECTICIDES

Poisonings following the accidental or intentional ingestion of insecticidal preparations have been frequently reported. Deaths have probably occurred. An acute fatal illness which followed the use of a spray to exterminate bedbugs has recently been reported [1] to THE JOURNAL. Reply from the manufacturer after inquiry concerning the composition of the preparation included the following: "Under the regulations of the Insecticide Act of 1910, whenever an insecticide does not contain a list of the percentage of active or inert ingredients, it is construed as being 100 per cent active. We regret that the policy of our company does not permit us to divulge the formula of any product." Under existing regulations active and toxic ingredients can be secretly incorporated in insecticides without disclosing their nature and thereby subjecting the users to great hazards. Remedial measures designed to require the proper labeling and other safeguards similar to those which have been adopted for drugs now appear to be urgently necessary.

ALDOUS HUXLEY'S VISION

Mr. Aldous Huxley's widely advertised new book "The Art of Seeing" and his magazine articles have brought new interest in certain unorthodox methods of treating visual defects which seemed to be en route to desuetude. The story [1] in brief is that Mr. Huxley, basing his conclusions on his own experiences, has revived the theories of William H. Bates. Bates, years ago, presented some animal experiments by which he claimed to have shown that accommodation in animals and man was due to the action of the superior and inferior oblique muscles and deformation of the eyeball, the universal treatment for which is the institution of "dynamic relaxation." This was to be accomplished by certain exercises, as a result of which the eye would become normal. Huxley maintains—and there is no reason to doubt his statement—that following an attack of keratitis punctata at 16 he followed orthodox methods of treatment with glasses for twenty-five years. His vision nevertheless became progressively more deficient until he began the Bates method of visual reeducation by eye exercises. "In two months," he then said, "I was reading without spectacles." Two possible explanations have so far been proposed: an ingenuous and complicated reconstruction of the sequence of possible organic events presented by Hamilton Hartridge, professor of physiology in the University of London, and the obvious possibility of a rapid functional recovery. Regardless of the actuality of these explanations it is certain, as Duke-Elder points out, that this method may be dangerous when prescribed for one who suffers from glaucoma or detachment of the retina or for a myopic child, even though it was as satisfactory for the simple neurotic as any other system of Yogi or Coué-ism. The majority of intelligent persons with access to competent ophthalmologists will not permit themselves for long to be deceived by pursuing this method. Unfortunately, many a credulous victim will throw away his glasses in search of perfect sight by this technic and thereafter find himself even worse crippled in eyesight than previously.

1. Personal communication.
1. Hartridge, Hamilton: The Strange Case of Mr. Huxley's Eyes, Lancet **1**: 657 (May 22) 1943. Duke-Elder, Stewart: Aldous Huxley on Vision, Brit. M. J. **1**:635 (May 22) 1943. Crisp, W. H.: Review of Huxley, Aldous: The Art of Seeing, New York, Harper & Brothers, 1942, Sight-Saving Review **12**: 303 (Dec.) 1942; Aldous Huxley a Disciple of W. H. Bates, editorial, Am. J. Ophth. **26**: 200 (Feb.) 1943.

MICROBES IN NATURAL HABITATS

In his presidential address before the Society of American Bacteriologists Waksman [1] discussed the relationships of microbes in their natural habitats as distinguished from their isolation and activities in pure cultures. In dealing with pathogenic microbes or with microbes used for various purposes in industry or in the preparation of foodstuffs, pure cultures are essential. But the pure culture is not adequate in the study of microbic life in soil, waters, plant and animal residues, and other substrates. The great majority of microbes carry out their activities in mixed populations in which the reactions of a particular microbe may differ greatly from those in pure culture unaffected by the presence of other microbes. Waksman, a soil microbiologist, draws on the microbic life of the soil for illustrations of the relationships of microbes in natural conditions. The microbe population of the soil includes "thousands of species of bacteria, hundreds of genera of fungi, actinomycetes and algae, numerous families of protozoa, nematodes, and other worms and insects"; probably also a great many viruses. Some soil microbes are concerned with highly specific reactions, e. g. fixation of atmospheric nitrogen, production of nitrite from ammonia and many others. Certain processes of this kind are carried out by a number of different organisms. Some of the processes take place in chainlike reactions in which one organism acts on the products of another. Decomposition of proteins or of cellulose is an example of this mode of action. Microbes in the soil appear not only to assist one another or to compete with one another but also to produce stimulating as well as directly injurious substances and effects. There is now an extensive literature on the results of research in this fertile field. Light has been shed on complex natural processes. The research dealing with the antagonistic relations of micro-organisms [2] is yielding results of practical significance. The production of antibiotic substances is of great importance in mixed microbic populations. Mixed cultures were early found to be antagonistic to pathogenic bacteria. Typhoid bacilli are destroyed by organisms in sewage, soil and water. Antibiotic substances may be produced by soil organisms on artificial mediums and also obtained by extraction of such organisms. Their effects vary: some act on many, some

1. Waksman, S. A.: The Microbe as a Biological System, J. Bacteriology **45**: 1 (Jan.) 1943.
2. Waksman, S. A.: Antagonistic Relations of Micro-Organisms, Bact. Rev. 10 231 (Sept.) 1941.

on only few microbes; some act on fungi, others on bacteria (penicillin, tyrothricin, gramicidin); they may influence cell division, respiration, metabolism. Waksman states by way of summary that these antibiotic substances have many important practical applications, including "(*a*) the domestication of micro-organisms for disease control; (*b*) the isolation of new chemotherapeutic agents for combating animal [and human] diseases; (*c*) the utilization of the activities of micro-organisms for combating certain plant diseases." The address gives a good bird's eye view of the struggles for existence in the world of microbes and of the dynamics of microbic populations.

SUDDEN DEATH FROM ALLERGIC SHOCK

A remarkable case of sudden death from allergic or anaphylactic shock is reported by Hunt,[1] who had charge of the medicolegal examination. The main details of the case are recounted on account of the warning it conveys to physicians. In a hospital for the insane a study was to be made of the rate of the cutaneous spread of color in schizophrenic as compared with normal persons. The test substance selected was guinea pig hemoglobin under the mistaken idea that it would be safe because of its supposed low antigenic power. It is not stated in the report how the hemoglobin was prepared or whether special efforts had been made to eliminate other blood proteins. Here the question arises why a foreign protein should be used to study the spread of color. Why not human hemoglobin? The guinea pig hemoglobin was dissolved in isotonic solution of sodium chloride "made up to a volume equivalent to that of the quantity of blood from which the corpuscles were originally derived," and of this solution 0.2 cc. was injected intradermally. The normal controls in this experiment were young women who were questioned "concerning allergic sensitiveness and previous immunization, to which negative replies were made in all cases. Physical examinations and eye and scratch tests were not made, since they were not thought necessary." One wonders how abnormal sensitiveness could have been excluded in the schizophrenic patients. A well developed woman of 22 became dyspneic and cyanotic, and in spite of the injection of epinephrine into the heart and artificial respiration she died ten minutes after the injection of guinea pig hemoglobin into the skin of the right forearm. The postmortem examination, the results of which are described fully in another paper,[2] brought forth no other explanation of death than allergic shock, and the Prausnitz-Küstner reaction, a local passive sensitization, revealed the presence in the blood of the dead woman of antibody specific for some component of guinea pig blood. Closer inquiry disclosed that the mother of the subject of this report had asthmatic attacks and symptoms of hay fever, that a brother suffered from hay fever and that the mother's first cousin, also asthmatic, at the age of 16 died ten minutes after the subcutaneous injection of diphtheria antitoxin, the first death of that kind in this country.[3] The lesson again brought home by the bare facts in Dr. Hunt's report is that the most watchful precaution must always be taken to avoid fatal shock on the injection of foreign protein antigenic material into human beings.

1. Hunt, E. L.: Death from Allergic Shock, New England J. Med. **228:** 502 (April 22) 1943.
2. Lund, Herbert, and Hunt, E. L.: The Postmortem Diagnosis of Allergic Shock: The Value of the Prausnitz-Küstner Reaction, Arch. Path. **32:** 664 (Oct.) 1941.
3. Kortright, J. L.: Practical Experiences with Antitoxin, Brooklyn M. J. **10:** 87, 1896.

CANCER OF THE STOMACH

The entire June issue of the *Archives of Surgery* is devoted to articles on various aspects of gastric carcinoma. Among the subjects discussed are experimental gastric carcinoma, relations between chronic atrophic gastritis and cancer of the stomach, metabolic abnormalities in patients with cancer of the gastrointestinal tract, diagnosis and surgical care of patients before and after operation, transthoracic resection for cancer, and prognosis and end results in the treatment of cancer of the stomach. The contributors include some of the most experienced workers, and the entire number therefore constitutes an up to date evaluation of present knowledge in the field.

PROVISIONAL BIRTH AND DEATH STATISTICS IN 1943

The rise in the birth rate in the United States became notably accelerated in the fall of 1942; preliminary figures [1] indicate that the rate has been continued at a high level for the first four months of this year although there has been a slight drop in the percentage increase in the monthly birth rates in comparison with the corresponding months of 1942. Based on figures for the first four months of 1943 the provisional annual crude birth rate is 22.1 per thousand of estimated population as compared with a rate of 19.2 for the same period of last year. It may be anticipated that as the war progresses the rise in crude birth rate will first decelerate and later decline. The death rate beginning in September 1942 also was higher than the rate for the corresponding months in 1941, and the crude death rate in 1943 has so far continued higher than in the early months of 1942. Sampling figures taken in March 1943 indicate that pneumonia and influenza mortality for the first quarter of 1943 was 10 per cent higher than last year, the rate for infectious enteric diseases was 15 per cent higher, that for the common diseases of childhood was 10 per cent higher and that for syphilis 11 per cent higher. The figures for deaths from cerebrospinal meningitis, which were sharply higher in the first months of 1943 than in 1942, are the only ones, however, which might be clearly interpreted as significant. The interpretation of these provisional figures must be cautious, but the facts themselves may sometimes furnish interesting clues to long or short term trends.

1. Monthly Vital Statistics Bulletin, Department of Commerce, Bureau of the Census, Washington, D. C., June 9, 1943, vol. 6, number 4. The Registrar, Department of Commerce, Bureau of the Census, Washington, D. C., June 15, 1943, vol. 8, number 6.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

ARMY

THE FINNEY GENERAL HOSPITAL

The Finney General Hospital was formally opened for patients on June 16 after having been activated on April 20. The hospital, located at Thomasville, Ga., has a setting of the Old South with brick pillars and a white wooden fence at the main entrance. A ¼ mile driveway leads through yellow pines to the Headquarters Building with its white columns and flanked by evergreens and boxwood. Throughout the spacious grounds are found numerous dogwood trees, crape myrtle and pine.

This 1,800 bed hospital is of the cantonment type. The officers' quarters, barracks and warehouses are composed of hollow tile, while the wards and connecting corridors are of gypsum board.

The commanding officer is Col. Samuel M. Browne of Anderson, S. C., and the executive officer is Lieut. Col. James T. McGibony of Greensboro, Ga. Colonel Browne has been in the Army Medical Corps for twenty-seven years; he spent two years in France; from 1929 to 1931 he was with the American forces in China. Prior to being ordered as commanding officer of the Finney General Hospital, Colonel Brown was chief of the medical service, Panama Canal Department, special detail with the governor of the Panama Canal and with Gorgas Hospital. Colonel McGibony is a graduate of the Army Medical School, Washington, D. C., and Carlisle Barracks, Pennsylvania. Colonel McGibony was on duty in the Surgeon General's Office in Washington before being assigned as executive officer at Finney General Hospital.

Administration building, Finney General Hospital, Thomasville, Ga.

The Finney General Hospital is named in honor of the late Brig. Gen. John Miller Turpin Finney (June 20, 1863-May 30, 1942), one of America's most distinguished surgeons. General Finney maintained a keen interest in and participated actively in military affairs. He was brigade surgeon of the Maryland National Guard from 1898 to 1904 and was commissioned in the Medical Reserve Corps in 1908. He was clinical professor of surgery at Johns Hopkins School of Medicine when he went abroad in 1917 as commanding officer of Base Hospital No. 18. In France General Finney was appointed director of surgery for the American Expeditionary Forces. He was awarded the Distinguished Service Medal for "the organization of surgical teams for the purpose of affording expert surgical aid to the wounded in the immediate vicinity of the battlefield." Dr. Finney received many honors. He was honorary member of the Hunterian Society of London, the Medical Society of London, the Royal College of Surgeons in England, the Royal College of Surgeons in Ireland, the Royal College of Surgeons in Edinburgh and received honorary LL.D.'s from Tulane University, Harvard University and Loyola College of Baltimore. He was one of the founders and first president of the American College of Surgeons, a member of the American Surgical Association, the Southern Surgical Association, the Medical and Chirurgical Faculty of Maryland and the Society of Clinical Surgery. Among the additional officers assigned to Finney General Hospital as of June 20 were:

Col. Samuel M. Browne, commanding officer.
Lieut. Col. James T. McGibony, executive officer, medical inspector.
Lieut. Col. Hugh L. McCalip, assistant medical inspector, Yazoo City, Miss.
1st Lieut. Frank E. Jones, sanitary engineer, Detroit.

SURGICAL DIVISION

Major Crenshaw D. Briggs, director of the surgical division, Washington, D. C.
Major Milford B. Hatcher, assistant director of the surgical division, Macon, Ga.
Major George T. McCutchen, chief of the general surgical branch, Columbia, S. C.
Major Thomas R. Gaines, chief of the eye, ear, nose and throat branch, Anderson, S. C.
Major Jacob Grove, chief of the genitourinary branch, Chicago.
Major Arthur J. Barsky, faciomaxillary-plastic surgery branch, New York.
Capt. Everett I. Bugg, chief of the orthopedic branch, Durham, N. C.
Capt. Aloysius P. Harney, chief of the septic surgery branch, New Bedford, Mass.
Capt. Joel Hartley, orthopedic branch, New York.
Capt. Albert Faulconer, chief of the anesthesia and operating branch, Detroit.
Capt. Leslie M. Jones, anesthesia and operating branch, Detroit.
Capt. William T. Lady, chief of the women's branch, Washington, D. C.
1st Lieut. Thomas A. Peterson, orthopedic branch, Savannah, Ga.

MEDICAL DIVISION

Major Hilton S. Read, director of the medical division, Atlantic City, N. J.
Major Howard D. Fabing, chief of the neuropsychiatric branch, Cincinnati.
Capt. Michael (NMI) Gleason, ward officer, communicable disease branch, Mendota, Ill.
Capt. Paul M. Glenn, chief of the gastroenterology branch, Cleveland.
Capt. A. G. Hollander, chief of the cardiovascular-renal branch, assistant director of the medical division, Brooklyn.

LABORATORY DIVISION

Lieut. Col. Charles G. Darlington, laboratory division, New York.
1st Lieut. Alexander K. Presnell, sanitary corps, biochemist, Cincinnati.
2d Lieut. Seth W. Gilkerson, sanitary corps, bacteriologist, Louisa, Ky.

OUTPATIENT DIVISION

Major George R. Dillinger, director of the outpatient division, admission and disposition officer, French Lick, Ind.
Major Joseph Killebrew, assistant admission and disposition officer, outpatient division, Chattanooga, Tenn.
Major Daniel Landrom, assistant outpatient division, San Juan, P. R.

ROENTGENOLOGIC DIVISION

Capt. Hobart H. Wright, M. C., director of the roentgenologic division, Milwaukee.
1st Lieut. Joseph McK. Ivie, M. C., assistant director of the roentgenologic division, Rochester, Minn.

AVIATION MEDICAL EXAMINERS

Graduation exercises were held at the School of Aviation Medicine, Randolph Field, Texas, on June 3, following completion of the course for Aviation Medical Examiners. The didactic portion of the course is conducted at Randolph Field, Texas, and the practical portion of the course at the three army air forces classification centers. The list of students graduating on June 3 follows:

ALABAMA

Thomas E. Booth, 1st Lieut., Montgomery.
William H. DeRamus, Captain, Selma.
Roy J. Grubbs Jr., 1st Lieut., Eutaw.
James T. Jackson, 1st Lieut., Montgomery.
Claude W. Lavender, 1st Lieut., Fairfield.

ARIZONA

Maxwell R. Palmer, 1st Lieut., Tucson.
Dwight H. Porter, Captain, Phoenix.

ARKANSAS

Clifton H. Beasley, 1st Lieut., Little Rock.

CALIFORNIA

LeGrande Anderson, 1st Lieut., Berkeley.
Manuel Barbosa, 1st Lieut., San Francisco.
Donald L. Brubaker, Captain, San Francisco.
W. Hollis Burrow, 1st Lieut., San Mateo.
Stephen B. Devin, Captain, Los Angeles.
Cornwall C. Everman, 1st Lieut., Point Reyes Station.
Arthur R. George, Captain, San Bernardino.
Joel M. Gibbons, 1st Lieut., Santa Paula.
Earl O. Hagen, 1st Lieut., Hanford.
Patrick C. Humphreys, Captain, Los Angeles.
Irving I. Lasky, 1st Lieut., Los Angeles.
Allan R. Mendelson, Captain, San Francisco.
Edward C. Pallette, Major, Los Angeles.
Roy T. Peck, 1st Lieut., Merced.
J. B. Melville Price, Major, Santa Ana.
Henry F. Quinn, 1st Lieut., Stockton.
Charles C. Smith, 1st Lieut., Oakland.
Ira M. Unsell, Captain, Santa Monica.
Dallas L. Wagner, 1st Lieut., Fort Bragg.
Horace A. Wald, 1st Lieut., South San Francisco.
Theodore W. Witalis, 1st Lieut., Pomona.

COLORADO

Harlan E. McClure, 1st Lieut., Lemar.
Frederick B. Parkhurst, 1st Lieut., Denver.

CONNECTICUT

Emerick Friedman, Captain, Norwick.
Weston M. Kelsey, 1st Lieut., Westport.
Warren W. LaPierre, 1st Lieut., Norwickton.
Ralph J. Lenoci, 1st Lieut., Bridgeport.
Frederick E. Mott, 1st Lieut., New Haven.
Robert Walker, Captain, Cornwall.

DISTRICT OF COLUMBIA

R. Brown, 1st Lieut., Washington.
Warren B. Burch, 1st Lieut., Washington.
Herschel F. Gray, 1st Lieut., Washington.
Edwin W. Hakala, Lieut. Col., Washington.
George E. Leone, Lieut. Col., Washington.
David M. Nolan, 1st Lieut., Washington.
Robert L. Simpson, 1st Lieut., Washington.
Abraham Tauber, 1st Lieut., Washington.

FLORIDA

Archie J. Baker, 1st Lieut., Jacksonville.
Ben A. Dreibrodt, 1st Lieut., Jacksonville.
Thomas S. Gowin, 1st Lieut., Kendall.
Oscar L. Kelley, Captain, West Palm Beach.
Paul O. Messner, Captain, Miami Springs.
Harvie J. Stipe, Captain, Fort Myers.

GEORGIA

Walker L. Curtis, Captain, College Park.
Wistar L. Graham Jr., 1st Lieut., Augusta.
James S. Peters Jr., Captain, Nashville.

ILLINOIS

Vaughn A. Avakian, 1st Lieut., Chicago.
Thomas H. Culhane Jr., Captain, Rockford.
Robert F. Dearborn, 1st Lieut., Byron.
Robert G. Fox, 1st Lieut., Park Ridge.
Harold J. Freiheit, 1st Lieut., Highland.
Norman E. Goulder, 1st Lieut., Chicago.
Robert D. Hart, 1st Lieut., Peoria.
Glenn L. Judson, 1st Lieut., Evanston.
Irwin A. Kallen, Captain, Chicago.
Robert T. LeSage, 1st Lieut., Dixon.
Emil D. Levitin, Captain, Chicago.
Walter Lewinnek, 1st Lieut., Mason City.
William A. Loeppert, 1st Lieut., Chicago.
Keith J. Long, 1st Lieut., Fairview.
George B. McNeely, 1st Lieut., Stanford.
Albert G. Martin, 1st Lieut., Aurora.
Howard W. Merideth, Captain, Chicago.
John W. Monroe, 1st Lieut., Benton.
Herman R. Moser, 1st Lieut., Aurora.
Alfred H. Movius Jr., 1st Lieut., Oak Park.
Carl F. Neuhoff, 1st Lieut., Peoria.
Henry C. Oleschowski, 1st Lieut., Chicago.
Herbert Rodewald, 1st Lieut., Murphysboro.
Julian J. Sitney, 1st Lieut., Chicago.
Ralph D. Sullivan, 1st Lieut., Chicago.
William O. Townsend, 1st Lieut., Chicago.
Elliott M. Tratt, 1st Lieut., Morris.
Arthur R. Weihe, 1st Lieut., Oak Park.

INDIANA

Robert C. Badertscher, Captain, Bloomington.
David B. Brown, 1st Lieut., Gary.
Ray H. Burnikel, 1st Lieut., Evansville.
Herbert O. Chattin, Captain, Vincennes.
Earl P. Cripe, 1st Lieut., Red Key.
Dee D. Gill, 1st Lieut., Greenfield.
Peter B. Hoover, 1st Lieut., Boonville.
Charles J. Marino, 1st Lieut., Gary.
Franklin F. Premuda, 1st Lieut. East Chicago.

IOWA

James H. Coddington, 1st Lieut., Humboldt.
Louis Goldberg, 1st Lieut., Des Moines.
Chauncey E. Heffernan, 1st Lieut. Sioux City.
Ardo M. Hess, 1st Lieut., West Union.
Jay E. Houlahan, Captain, Mason City.
Ernest C. Magaret, 1st Lieut., Glenwood.
Paul W. Osincup, 1st Lieut., Sioux City.
Paul L. Pascoe, 1st Lieut., Carroll.
Dean C. Snyder, 1st Lieut., De Witt.

KANSAS

Morris R. Blacker, Major, Wichita.
George R. Maser, 1st Lieut., Mission.
Leland P. Randles, 1st Lieut., Fort Scott.

KENTUCKY

John D. Allen Jr., 1st Lieut., Louisville.

LOUISIANA

Byron L. Cook, 1st Lieut., Minden.
Philip S. Gold, 1st Lieut., Burrwood.
Lee E. Hartman, 1st Lieut., Shreveport.
Martin Z. Kaplan, 1st Lieut., New Orleans.
Roger F. Miller, 1st Lieut., Jennings.

MAINE

George C. Howard, 1st Lieut., Guilford.
Harold E. Pressey, Major, Bangor.

MARYLAND

Donald D. Cooper, Major, Towson.
Irwin P. Klemkowski, 1st Lieut., Baltimore.
Joshua M. Perman, 1st Lieut., Baltimore.
Daniel J. Schwartz, 1st Lieut., Baltimore.

MASSACHUSETTS

James C. Allanson, 1st Lieut., Boston.
Hugh G. Brereton, 1st Lieut., Boston.
John J. Clark, 1st Lieut., Northampton.
Joseph H. Colman, 1st Lieut., Mansfield.
George A. Curley, 1st Lieut., Boston.
Franklin C. David, 1st Lieut., Boston.
Milton Elkin, 1st Lieut., Boston.
Samuel M. Finkelstein, 1st Lieut., Boston.
Frank P. Foster, Major, Boston.
Donald E. Higgins, Captain, Cotuit.
Leroy E. Mayo, 1st Lieut., Holden.
Richard H. Wallace, Captain, Boston.

MICHIGAN

James M. Fitzgerald, Captain, Detroit.
Robert M. Griffith, 1st Lieut., Muskegon.
Arthur B. Levant, 1st Lieut., Detroit.
Reuben H. McArthur Jr., Captain, Clio.
Marion S. McLellan, 1st Lieut., Grand Rapids.
Darvan A. Moosman, 1st Lieut., Pontiac.
Emil F. Rupprecht, Captain, Detroit.
John G. Ruth, Captain, Benton Harbor.
Gregory A. Skully, 1st Lieut., Detroit.
Edward Stein, 1st Lieut., Detroit.
John W. Strayer, 1st Lieut., Ann Arbor.
Donald A. Young, 1st Lieut., Detroit.

MINNESOTA

Schuyler P. Brown, 1st Lieut., Minneapolis.
William D. Cleaves, 1st Lieut., Grand Rapids.
John East, Captain, Northome.
Carl J. Fritsche, Captain, New Ulm.
William M. Haller, Captain, Bemidji.
John E. Minckler, 1st Lieut., Virginia.
Lorin M. Olson, 1st Lieut., Chisago City.

MISSISSIPPI

William R. Armstrong, 1st Lieut., Iuka.
Walter W. Crawford, 1st Lieut., Hattiesburg.
Joseph S. Edmondson, 1st Lieut., Vardaman.
Harvey F. Garrison, Captain, Jackson.

MISSOURI

Thomas W. Alsobrook, Captain, St. Louis.
John R. Forgrave, 1st Lieut., St. Joseph.
Max S. Franklin, 1st Lieut., St. Louis.
Edmund J. Kadlubowski, Major, Lemay.
Larry B. Klebba, 1st Lieut., St. Louis.
Martin J. Mueller, 1st Lieut., Kansas City.
Howard B. Throgmorton, 1st Lieut., Sikeston.

MONTANA

Robert L. Casebeer, 1st Lieut., Butte.

NEBRASKA

Daniel D. Dolce, 1st Lieut., Omaha
Arthur M. Greene, Captain, Omaha

NEW HAMPSHIRE

James M. Ballou, Captain, Keene.
Donald E. Bowen, 1st Lieut., Wentworth Location.

NEW MEXICO

Thomas L. Morgan, Captain, Hobbs.
Lucien G. Rice Jr., Captain, Albuquerque.
Carl W. Whistler, Captain, Albuquerque.

NEW JERSEY

Banks S. Baker, 1st Lieut., Camden.
Milan Duray, Captain, Bergen.
Charles M. Howell Jr., 1st Lieut., Lawrenceville.
Charles S. Kollar, 1st Lieut. Teaneck.
John T. McLaughlin, Captain, Pleasantville.
John J. Marsella, 1st Lieut., Jersey City.
John A. Sullivan, 1st Lieut., Teaneck.
Eli A. Wallack, 1st Lieut., Jersey City.

NEW YORK

Carl B. Alden, Captain, Adams.
Harold Axelrod, Captain, Brooklyn.
Harmon J. Bailey, Captain, New York.
Benjamin H. Balser, Major, New York.
Edmund M. Braun, 1st Lieut., New York.
Joseph F. Cavaliere, 1st Lieut., Brooklyn.
Harry R. Chinigo, Captain, Flushing.
Edgar L. Clayton, 1st Lieut., Jamaica.
James T. Collins, 1st Lieut., Elmhurst.
Anthony V. Condello, 1st Lieut., Brooklyn.
Joshua R. Derow, 1st Lieut., Brooklyn.
George F. Emerson, 1st Lieut., Scotia.
Norman Fabian, Captain, Poughkeepsie.
Byron O. Garner, 1st Lieut., New York.
Constantine D. Generales, 1st Lieut., New York.
Lee Gillette, 1st Lieut., New York.
John P. Glaubitz, 1st Lieut., Hempstead.
Warren F. Gorman, 1st Lieut., Flushing.
Seymour B. Gostin, 1st Lieut., Valhalla.
William F. Greene, 1st Lieut., New York.
Peter V. Gugliuzza, 1st Lieut., Jamaica.
Frank P. Hill, 1st Lieut., New York.
Donovan M. Jenkins, Captain, Webster.
Frank D. Jennings Jr., 1st Lieut., Brooklyn.
Augustin Jones, 1st Lieut., New York.
Sidney Kahn, 1st Lieut., New York.
Charles Kavovit, Captain, New York.
Ernest F. Kish, 1st Lieut., Mount Kisco.

Michael R. Labate, Captain, Brooklyn.
John L. H. Mason, Captain, Pulaski.
Angelo Mastrangelo Jr., 1st Lieut., New York.
Thomas F. McDermott Jr., 1st. Lieut., New York.
John W. Mead, Captain, Poughkeepsie.
Edward Meilman, 1st Lieut., New York.
Simon B. Mendelsberg, 1st Lieut., Brooklyn.
Robert E. Mountain, 1st Lieut., Olean.
Herbert F. Mulholland, Captain, Far Rockaway.
Harry L. Orlov, Captain, New York.
Amedeo W. Pallone, 1st Lieut., Flushing.
Herbert Pearl, 1st Lieut., Brooklyn.
Joseph A. Pincus, 1st Lieut., Brooklyn.
Norbert J. Roberts, 1st Lieut., Buffalo.
Elias Savitsky, 1st Lieut., New York.
Joseph F. Schneider, 1st Lieut., Brooklyn.
Jerome Schroff, 1st Lieut., New York.
Spencer J. Servoss, Captain, Medina.
James D. Sharpe, 1st Lieut., New York.
Stanley J. Snitow, 1st Lieut., New York.
Kenneth J. Wheeling, 1st Lieut., Port Jervis.

NORTH CAROLINA

Rudolph P. McCulloch, 1st Lieut., Durham.

NORTH DAKOTA

Alfred M. Fulton Jr., 1st Lieut., Minot.
Marvin J. Geib, 1st Lieut., West Fargo.

OHIO

Morris L. Battles, 1st Lieut., East Cleveland.
Kenneth E. Bennett, 1st Lieut., Strasburg.
Edmond J. Booth, 1st Lieut., Columbus.
Riley E. Frush, 1st Lieut., Lexington.
Stephen V. Geroch, 1st Lieut., Akron.
Courtney L. Jack, Captain, Cincinnati.
Charles F. Kiefer, Captain, Cincinnati.
Alexander H. Kimmel, Captain, Norwalk.
George L. Maltby, Captain, Cincinnati.
Merritt K. Marshall, 1st Lieut., Findley.
Jerome H. Meyer, 1st Lieut., Cleveland.
William F. Mitchell, 1st Lieut., Columbus.
Guy S. Peterson Jr., 1st Lieut., Cleveland.
Earl E. Pinnell, 1st Lieut., Cleveland.
Ernest D. Rehm, 1st Lieut., Toledo.
Raymond H. Schroeder, 1st Lieut., Quincy.
Birna R. Smith, 1st Lieut., Lewisburg.
George R. Smith, 1st Lieut., Painesville.
Lloyd M. Snively, 1st Lieut., Massillon.
Ralph J. Starbuck, 1st Lieut., Salem.
John P. Urban, 1st Lieut., Columbus.

OKLAHOMA

Paul S. Anderson, 1st Lieut., Claremore.
Evan G. Houston, 1st Lieut., Oklahoma City.
Claude B. Knight, 1st Lieut., Wewoka.
Edwin C. Yeary, Captain, Elmore City.

OREGON

James W. Wiley, 1st Lieut., Portland.

PENNSYLVANIA

Robert F. Beckley, 1st Lieut., Bryn Mawr.
William P. Britsch Jr., 1st Lieut., Philadelphia.
Harry H. Clements, 1st Lieut., Coraopolis.
Charles Q. DeLuca, Major, Philadelphia.
John L. Feldman, 1st Lieut., Philadelphia.
Lloyd R. Forcey, Captain, Williamsport.
William L. Granatir, Captain, Philadelphia.
Lester S. Greider, 1st Lieut., Millersburg.
Warren B. Grover, 1st Lieut., Peckville.
DeWitt C. Kissell, 1st Lieut., Pittsburgh.
Dominic E. Losasso, Captain, Vandergrift.
Milton C. Maloney, 1st Lieut., Hanover.
Phillip R. McDonald, Major, Philadelphia.
Ned D. Mervine, 1st Lieut., Meadville.
Harry H. Miller, 1st Lieut., Johnstown.
Frederick A. Parsons, 1st Lieut., Pittsburgh.
Edward M. Phillips, 1st Lieut., Mount Lebanon.
Kenneth M. Reighter, 1st Lieut., Philadelphia.
Leonard Snydman, 1st Lieut., Philadelphia.
John W. Strouse, 1st Lieut., Hulmeville.
Robert U. Wissler, 1st Lieut., Ephrata.

RHODE ISLAND

Michael Di Maio, 1st Lieut., Providence.
Edward Foster, 1st Lieut., Pawtucket.
John L. O'Hara, 1st Lieut., Providence.

TENNESSEE

John H. Ledbetter Jr., 1st Lieut., Memphis.

TEXAS

Robert J. Axtell, 1st Lieut., San Antonio.
Stephen A. Foote, Jr., Captain, Houston.
Samuel B. Goodson, 1st Lieut., Sherman.
Ralph N. Greene Jr., Captain, San Antonio.
Royal H. Kay, 1st Lieut., Dallas.
William M. Lively Jr., 1st Lieut., Dallas.
Columbus H. McCuistion Jr., Captain, Austin.
Orin P. McMillan, Captain, San Antonio.
Dudley Y. Oldham, Captain, Houston.
August H. Saegert, 1st Lieut., San Antonio.
Gerald S. Smith, 1st Lieut., Lubbock.
Robert C. Stow, Captain, Fort Worth.

VERMONT

Raynald T. Cooney, Capt., Burlington.

VIRGINIA

Julius F. Chairsell Jr., 1st Lieut., Christiansburg.

WASHINGTON

Thomas W. Crowell, 1st Lieut., Seattle.
Charles G. Day, 1st Lieut., Seattle.
Charles D. Kimball, 1st Lieut., Seattle.
William V. Meyer, 1st Lieut., Everett.
Harry M. Morgan, Captain, Longview.
Paul W. Sweet, 1st Lieut., Centralia.

WEST VIRGINIA

William A. Dasher, 1st Lieut., Parkersburg.
James H. Gray Jr., Captain, Clendenin.
Owen A. Groves, 1st Lieut., Charleston.

WISCONSIN

Samuel B. Black, 1st Lieut., West Allis.
Carl A. Fosmark, 1st Lieut., Madison.
Louis D. Graber, 1st Lieut., Wauwatosa.
Halbert Gulbrandsen, 1st Lieut., Viroqua.
Douglass A. Gutheil, 1st Lieut., Wauwatosa.
Laurence H. Siegel, Captain, Milwaukee.
Paul J. Trier, 1st Lieut., Fond-du-Lac.
Joseph E. Vaccaro, 1st Lieut., Wauwatosa.

WYOMING

Louis G. Booth, 1st Lieut., Sheridan.
Lowell D. Kattenhorn, 1st Lieut., Powel.

CANAL ZONE

Theodore Stonehill, 1st Lieut., Gatun.

AWARDED LEGION OF MERIT

The War Department announced on July 15 an award of the Legion of Merit to Col. Austin J. Canning, M. C., U. S. Army, for exceptionally meritorious service in the performance of outstanding service as commanding officer, Station Hospital, Schofield Barracks (now known as North Sector General Hospital), in planning and coordinating the expansion of that hospital. During the period commencing Dec. 7, 1941 his performance of duty in establishing and carrying out the handling of battle casualties contributed in a large measure to the saving of a large percentage of such casualties. Colonel Canning graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1911 and from the Army Medical School in 1914.

Col. Clarence E. Fronk of the Army Medical Department has been awarded the Legion of Merit for exceptionally meritorious service as assistant (liaison officer) to the department surgeon, Hawaiian Department, during the period Feb. 13, 1941 to April 11, 1941 in connection with the formulation of plans for the initiation of civilian medical defense measures and in presenting these plans to and having them accepted by local civilian agencies and authority. His energy, experience and knowledge of local conditions were of the greatest value and contributed materially to stimulating the initiation and development of civilian medical defense measures, largely volunteer, at a time when such action was most necessary. Colonel Fronk graduated from St. Louis University School of Medicine in 1906.

Col. Alvin C. Miller, M. C., U. S. Army, was awarded the Legion of Merit for exceptionally meritorious service in the performance of outstanding service as commanding officer, Tripler General Hospital, in maintaining efficient hospital facilities on and after Dec. 7, 1941, reflecting great credit on the military establishment through the exceptionally prompt handling of a large number of wounded admitted within a brief period following the Japanese attack on Oahu, thus contributing in a large measure to the saving of an unsually high proportion of such casualties. Colonel Miller graduated from the Medical College of Ohio, Cincinnati, in 1909 and from the Army Medical School in 1912.

Lieut. Col. (then Major) Leonard D. Heaton, M. C., U. S. Army, was awarded the Legion of Merit for exceptionally meritorious service in the performance of outstanding service as chief of the surgical service, North Sector General Hospital, at the time of the Japanese attack on Hawaii on Dec. 7, 1941 and the months that followed. Lieutenant Colonel Heaton, by his unusual devotion to duty and his excellent judgment at the time of the sudden emergency on Dec. 7, 1941 did much to enhance the efficiency, state of readiness and effectiveness of the surgical teams handling that emergency and by so doing rendered service of great value. Lieutenant Colonel Heaton graduated from the University of Louisville School of Medicine in 1926, from the Army Medical School in 1929 and from the Medical Field Service School in 1929.

Lieut. Col. Charles T. Young, M. C., U. S. Army, was awarded the Legion of Merit for exceptionally meritorious service in the performance of duty during and after the Japanese attack on Oahu, Dec. 7, 1941. Lieutenant Colonel Young, then chief of the medical service, took over the supervision of all surgical wards and expeditiously organized and controlled the entire ward service for the preoperative and postoperative care of the wounded, thereby making emergency therapeutic measures quickly available to battle casualties and contributing largely to the saving of lives. By his excellent judgment and thorough adaptability to these unusual duties he reflected great credit on the Medical Corps, United States Army. Lieutenant Colonel Young graduated from Johns Hopkins University School of Medicine in 1927 and from the Army Medical School and Army Field Service School in 1929.

ONE THOUSAND CIVILIAN EMPLOYEES TREATED DAILY BY WAR DEPARTMENT

The War Department announced on July 2 that an average of 1,000 of its civilian employees in Washington apply for medical treatment or advice daily in War Department emergency rooms. During May, 2,751 patients were treated and 555 were sent home as unfit for duty. There were 1,450 employees injured on duty, mostly minor injuries, who were treated in emergency rooms. Only 38 of these were sent to the United States Public Health Service. Patients whose attendance records are faulty are examined in the emergency rooms to determine their fitness for duty. Physicians also examine individuals who apply for parking space near entrances because of physical disabilities. Staff physicians have completed 4,646 chest x-ray examinations, and are handling 200 a day. Arrangements have been made with state and city health units for care and home supervision of any tuberculous persons found. The facilities of the George Washington University Hospital Medical School have been offered for treatment of some cases of lung and heart disease found by War Department doctors.

The yearly per capita cost of treating the 44,000 civilian employees of the War Department amounts to $2.37. Lieut. Col. A. J. Lanza, chief of the Occupational Hygiene Branch, Office of the Surgeon General of the Army, states that the amount allowed annually for this purpose in private industry commonly ranges from $5 to $10 per capita.

COLONEL HUME APPOINTED HEALTH OFFICER OF OCCUPIED SICILY

In an Associated Press dispatch from the allied headquarters in North Africa on July 18 concerning Gen. Harold Alexander's proclamation to the people of Sicily as military governor for the Allies of that island, it was pointed out that several AMGOT (Allied Military Government of Occupied Territory) leaders were already in Sicily or preparing to go soon in connection with the establishment of military government on that island; among those named in this category was Col. Edgar E. Hume of the Army Medical Corps, who was listed to be chief American health officer. Colonel Hume graduated from Johns Hopkins University School of Medicine in 1913 and entered the Medical Reserve Corps as a first lieutenant on Sept. 16, 1916. He had been director of administration at the Medical Field Service School, Carlisle Barracks, Pa., since 1937.

APPOINTMENT OF MARRIED NURSES IN ARMY NURSE CORPS

For the duration of the war and for six months thereafter, married nurses who meet all other requirements for military service may now be accepted for appointment in the Army Nurse Corps as Reserve nurses. Only those nurses who are willing to accept assignment unreservedly will be appointed. A nurse with one or more dependent children under 14 years of age may not qualify for appointment.

LIEUT. EDITH E. GREENWOOD AWARDED SOLDIER'S MEDAL

The War Department announced on July 15 that Lieut. Edith E. Greenwood of North Dartmouth, Mass., was awarded the first Soldier's Medal ever made to a woman for her heroic conduct in saving her patients from a hospital fire at Yuma, Ariz., on April 17. A stove in the diet kitchen exploded and fire quickly spread through the ward, where Lieutenant Greenwood was duty nurse in charge of 15 bed patients. Lieutenant Greenwood gave the alarm and with the ward attendant, Pvt. 1st Class James J. Ford of Madrid, Iowa, tried to extinguish the flames. Finding that impossible, they removed all the patients safely. The rescue was speedily achieved and not a single patient was injured, although the ward burned to the ground in five minutes. Lieutenant Greenwood entered the army in September 1942, having completed her nurse's training at St. Luke's Hospital, New Bedford, Mass., in 1941.

NAVY

CAPT. ERIK G. HAKANSSON IN COMMAND AT NAVAL MEDICAL RESEARCH INSTITUTE

Capt. Erik G. Hakansson, MC, U.S.N., assumed command of the Naval Medical Research Institute, Bethesda, Md., on July 17, succeeding Rear Adml. William L. Mann, MC, U.S.N., newly appointed medical officer for the Thirteenth Naval District. Captain Hakansson will supervise numerous scientific investigations which are being undertaken in the fields of naval medicine, surgery and hygiene. The projects under study include improvement of oxygenation, prevention of flash burns, provision of drinking water for sea castaways, nutrition, equipment for high altitude fliers and deep sea divers, and many others. Captain Hakansson is a specialist in tropical medicine and medical parasitology and has been on duty in the division of research, Bureau of Medicine and Surgery, since April 1942, when he was ordered to Washington from the U. S. hospital ship *Solace*. He graduated from the University of Illinois College of Medicine in 1915 and after an internship of two years he was commissioned in the medical corps of the navy as a lieutenant (jg). He was on duty in the Virgin Islands during the first world war organizing medical attendance for the inhabitants and modernizing hospital and sanitary services.

SHIP NAMED FOR DENTAL OFFICER

A new destroyer-escort vessel will be named in honor of the late Lieut. Comdr. Laurice A. Tatum (DC), U.S.N.R., who was killed in action on Sept. 15, 1942 while attached to the U. S. S. *Wasp* during the battle of the Solomons. The new escort vessel was launched on July 3 at Orange, Texas, with Mrs. Cecile Cofield Tatum, widow of Dr. Tatum, as sponsor. Lieutenant Commander Tatum was awarded the Silver Star Medal posthumously on February 12. The citation was as follows:

"For extremely gallant and intrepid conduct while serving aboard the U. S. S. *Wasp* during the attack on that vessel by enemy Japanese forces. Completely cut off from the rest of the ship by raging flames, Lieutenant Commander Tatum calmly braved the danger from fire, exploding ammunition and flying débris to remain in the forecastle to administer first aid to all wounded in the vicinity. His great personal valor and courageous efforts on behalf of his shipmates, carried on only with improvised facilities, were in keeping with the highest traditions of the United States Naval Service."

MONTHLY CONFERENCE OF NAVAL MEDICAL RESEARCH INSTITUTE

The monthly conference held at the Naval Medical Research Institute, National Naval Medical Center, Bethesda, Md., on July 13 was attended by Rear Admiral E. R. Stitt, MC, U.S.N., Ret., and Rear Admiral H. W. Smith, MC, U.S.N., Ret., who spoke on the contributions of Admiral W. L. Mann Jr., MC, U.S.N., to the field of medicine, naval hygiene and sanitation and naval medical research and was of the nature of a farewell to Admiral Mann on his detachment and departure to a new assignment as the incumbent president of the Association of Military Surgeons. These monthly conferences are informal and are designed for the interchange of ideas between outside scientists and the staff of the Naval Medical Research Institute.

PHOTOFLUOROSCOPIC CHEST EXAMINATIONS OF V-12 STUDENTS

The Bureau of Medicine and Surgery of the U. S. Navy, Washington, D. C., announces that two new trucks equipped to make photofluoroscopic chest examinations have been procured for field use in connection with the V-12 Navy College Training Program for medical and dental students. One unit will be used in the East Coast and the other will cover the West Coast area. Arrangements are now being made to send these trucks to various training colleges in both coast areas to take chest pictures of all V-12 students.

SPECIAL LAPEL AND SLEEVE INSIGNIA FOR MEDICAL AND DENTAL STUDENTS

Special lapel and sleeve insignia have been authorized, according to the Bureau of Medicine and Surgery, for students in the Navy V-12 Program attending medical and dental colleges. Such students will wear the regular midshipmen's uniform. On the lapels of the blue uniform coat medical students will wear a device composed of the oak leaf and acorn insigne of the medical corps superimposed on a fouled anchor at a 45 degree angle. Similarly, dental students will wear the dental corps insigne superimposed on a fouled anchor. In addition, the number of years of completed medical or dental study will be indicated by gold sleeve stripes. These stripes, one for each year completed, will be 1½ inches long and ⅛ inch wide. They will be sewed 2 inches above the cuff and at a 45 degree angle to the cuff line. First year medical or dental students will wear clean sleeves. When in khaki uniforms, medical and dental students will wear pin-on insignia, similar to the lapel insignia, on each side of the shirt collar.

AWARDED LEGION OF MERIT

Lieut. Harold A. Cassady, MC, U.S.N.R., was awarded the Legion of Merit for exceptionally meritorious conduct in the performance of outstanding services as medical officer of a beach party during the assault on and occupation of French Morocco from Nov. 8 to 11, 1942. With utter disregard for his own personal safety, Lieutenant (jg) Cassady tirelessly and skilfully administered to the wounded in the face of hostile gunfire, thereby contributing greatly to the success of this operation. His cool courage and heroic devotion to duty were a constant inspiration to his corpsmen and were in keeping with the highest traditions of the United States Naval Service. Lieutenant Cassady graduated from the University of Cincinnati College of Medicine in 1941. His home address is Cincinnati.

NEW PROCUREMENT AND ASSIGNMENT SERVICE ADDRESS

The Central Office of the Procurement and Assignment Service for Physicians, Dentists, Veterinarians, Sanitary Engineers and Nurses in Washington, D. C., was moved on July 24 from 1006 U Street N.W. to 1778 Pennsylvania Avenue N.W. Future communications should be sent to the latter address.

MISCELLANEOUS

PUBLIC HEALTH UNDER HITLER

According to the *Aftonbladet*, Stockholm, April 12, the quisling authorities have attempted to force Norwegian doctors to pay a compulsory yearly subscription of 100 kroner to the national socialist organization. This has encountered determined opposition, and nearly all the doctors are declaring that they will not bow to the demands of the national socialist organization or of the authorities.

Radio Paris of April 13 states that the secretary of state for health and the family has issued a reminder that under the law of March 25, 1943 doctors, pharmacists and dentists established since Jan. 1, 1940 who have not yet joined the Order of Doctors of the Chamber of Pharmacists must register within fifteen days at the office of the health inspector of their prefecture. In principle, all those who are able to follow their profession in civilian life will be considered as able to do so in prisoners' camps. The stay there would last one year.

Reich Health Leader Dr. Conti, according to DNB, Germany, April 14, stated at a conference of the Reich Midwives' Association that the fall in the mortality rate of mothers had continued even during the recent war years. He thanked the midwives for these good results, which they have achieved at births at which they attended unaided. This applied to 75 per cent of all childbirths, which were seen through by midwives established in free practice on their own responsibility, while they acted as doctors' assistants in the remaining 25 per cent of childbirth cases. The reich health leader specially praised the fine efforts and the courage displayed by midwives in areas exposed to air raids, for which several of them had been awarded the War Merit Cross.

According to Universul, Rumania, April 3, in view of the campaign against epidemics, Dr. I. Apostolescu, chief municipal doctor of Bucharest, has decided that the Casa Asigurariler Sociale should contribute two groups for delousing and disinfection. In the framework of the same campaign 50 beds have been provided in a special pavilion of the Colentina hospital for convalescents from infectious diseases.

Universul, Rumania, March 29, reports that in view of the fact that the present situation renders the supply of medicines containing insulin very difficult, the Ministry of Health has ordered a census of all persons suffering from diabetes and a rationing of the medicines containing insulin, so that this ingredient can be economized. The census will be made by medical clinics and the services for internal medicine. The census must be finished by March 31, when insulin cards will be issued.

According to the *Petit dauphinois*, France, April 28, the compulsory antitetanic and antidiphtheritic vaccination of children between 1 and 14 will be carried out in Annecy before June 16. Parents who do not comply are under severe penalties.

According to *Wiesci Polskie*, Budapest, April 2, from April 1 the so-called state medical courses for students of "Aryan" origin of non-German nationality will be opened in Lwów. Persons who have had six months' labor service will be admitted. Instead of labor service, sanitary work in hospitals, work in the reich or services rendered in combating the typhus epidemic may also be recognized.

In France, *l'Effort* of May 19 reports that after ten years' research Prof. Gaston Ramon, with the assistance of Drs. Lemetayer, Minguet, Touze-Yen and Paul Ramon, has discovered a serum against foot and mouth disease obtained from horses. The first experiments being most successful, it is hoped that a large scale production will prevent the recurrence of foot and mouth disease, which caused the loss of a million head of cattle in France in 1937.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Dr. Askey Resigns as President of School Board.—Dr. Edwin Vincent Askey has resigned as president of the Los Angeles City Board of Education. In his letter of resignation Dr. Askey said "As long as the war continues I feel my first duty lies in the practice of medicine." Dr. Askey was elected to the board for a four year term in May 1937. During the 1940-1941 school year he was president of the board and in 1941 was reelected for a second four year term.

CONNECTICUT

Mobile X-Ray Unit.—The new mobile x-ray unit of the Connecticut State Tuberculosis Commission recently started its first survey of industrial groups in cooperation with the New Haven Department of Health. The work is being carried out among employees of industrial plants.

Hartford Responds to Drive for Funds.—On July 9 only $155,000 was needed in the campaign for a fund of five million dollars for the Hartford Hospital. A concentrated program was directed by Will, Folsom and Smith, Inc., New York. At a "Victory Dinner" of volunteers 147 corporations subscribed more than $1,800,000, 410 subscriptions from individuals and families accounted for more than $2,500,000 and 28,314 employees in industrial plants subscribed more than $169,000. The funds are to be used to finance a building program at the Hartford Hospital.

KENTUCKY

Food Poisoning Traced to Pasteurized Milk.—An outbreak of 32 cases of food poisoning in a Kentucky community of 8,000 population was traced to pasteurized milk, according to a recent report. The milk was sold by one of three large distributors, all patients being among customers of one distributor. A majority of the patients were children under 10 years of age. Illness was characterized by nausea, vomiting, prostration and, in a few cases, diarrhea. These symptoms developed in from one to seven hours after consumption of the milk. Ninety-eight cows, distributed in four herds, were examined. Investigation at the pasteurizing plant revealed insanitary conditions. Probably the most important observation was that afternoon milk, after being run over the cooler into the pasteurization vat, was allowed to stand without further cooling until about 9 o'clock the following morning. There was evidence that the milk temperature during the night rose as high as 76 F. In a report, Dr. Fred W. Caudill, Louisville, director of the division of communicable diseases of the Kentucky State Department of Health, and Melvin A. Meyer, state milk sanitarian, concluded that the outbreak was due to staphylococcus toxin developed during the several hours of pasteurization when the milk was at about room temperature.

LOUISIANA

Stamp Collection Given to Tulane.—Dr. B. Bernard Weinstein, instructor in gross anatomy and gynecology at Tulane, has presented a postage stamp collection to the Tulane University of Louisiana School of Medicine, New Orleans. According to the *Tulanian* the collection contains stamps honoring such characters of medical history as Imhotep, an Egyptian deity of medicine, and the Curies, discoverers of radium. The collection is said to be one of the largest in the country. Dr. Weinstein graduated at Tulane in 1937.

Dr. Erwin Nelson Joins Burroughs Wellcome & Company.—Dr. Erwin E. Nelson, since 1937 professor and head of the department of pharmacology at Tulane University School of Medicine, New Orleans, has been appointed director of research of the Burroughs Wellcome & Company (United States) experimental research laboratories at Tuckahoe, N. Y. Dr. Nelson had received his Ph.D. at the University of Missouri, Columbia, in 1920 and graduated at the University of Michigan Medical School, Ann Arbor, in 1926. He had been assistant professor in pharmacology at Michigan from 1919 to 1927, associate professor from 1927 to 1936 and professor from 1936 to 1937, when he joined the Tulane faculty. Among other positions held during his career Dr. Nelson was principal pharmacologist and chief of the division of pharmacology of the Food and Drug Administration for a year in 1935. He has been consulting pharmacologist to the administration since 1936. He is an Associate Fellow of the American Medical Association and in 1939 was chairman of its Section on Pharmacology and Therapeutics.

MASSACHUSETTS

State Medical Election.—Dr. Elmer S. Bagnall, Groveland, was chosen president-elect of the Massachusetts Medical Society at its annual meeting in May and Dr. Roger I. Lee, Boston, was installed as president. Dr. Michael A. Tighe, Boston, is the secretary.

Personal.—Brenton R. Lutz, Ph.D., professor of biology in the Boston University College of Liberal Arts, has been elected a fellow in the American Academy of Arts and Sciences.—Dr. Frank H. Lahey, Boston, recently received the degree of doctor of science from Boston University.

Creation of Nutrition Chair Marks Seventieth Birthday of Frances Stern.—On July 4 Miss Frances Stern, chief of the food clinic of the Boston Dispensary, Boston, observed her seventieth birthday. To commemorate this event a fund has been established in the Tufts College Medical School to be used by her to extend the research and educational activities of the clinic. A department of nutrition will be set up and staffed by selected members of the faculty for the duration of the war with the hope that later a full professor of nutrition may be installed. The food clinic at the dispensary has been named the Frances Stern Food Clinic to honor further the woman who established it twenty-five years ago. The clinic is said to be the first of its kind and was established in 1918. After her return from Paris, where she had been head worker of Pour l'Enfance et la Famille par l'Aide Sociale, which had been carrying on the service begun by the American Red Cross, the food clinic became the main concern of Miss Stern. The plans in her honor are being carried on by the Frances Stern Seventieth Birthday Fund begun by many of her friends. Judge A. K. Cohen, president of the Jewish Philanthropies, is chairman. In 1908 Miss Stern was assistant to Mrs. Ellen H. Richards, first woman student and teacher at the Massachusetts Institute of Technology and founder of the American Institute of Home Economics.

MINNESOTA

Changes at the University of Minnesota.—Dr. J. Charnley McKinley, head of the department of medicine and director of the division of nervous and mental diseases, University of Minnesota Medical School, Minneapolis, has been named head of the newly established department of neuropsychiatry at the school, which includes the division of adult psychiatry and child psychiatry. Dr. Cecil J. Watson has been named head of the department of medicine and director of the division of internal medicine. Dr. Raymond N. Bieter, professor of pharmacology, has been appointed head of the department of pharmacology to succeed the late Dr. Arthur D. Hirschfelder. According to an announcement, recent promotions at the university include:

Harold A. Whittaker, B.A., to clinical professor of preventive medicine and public health.
Dr. Ralph T. Knight to clinical professor of anesthesia.
Dr. Wallace D. Armstrong to professor of physiologic chemistry.
Dr. Clarence D. Dennis to associate professor of surgery.
Dr. N. Logan Leven to clinical associate professor of surgery.
Dr. Charles E. McLennan to associate professor of obstetrics and gynecology.
Dr. Charles E. Connor to clinical associate professor of ophthalmology and otolaryngology.
Joseph T. Cohen, D.D.S., to clinical associate professor of pediatrics.
Miss Ruth B. Freeman to associate professor of preventive medicine and public health.
George O. Pierce, M.S., to associate professor of preventive medicine and public health.
Dr. Edward A. Regnier to clinical associate professor of surgery.
Dr. Thomas J. Kinsella to clinical associate professor of surgery.
Dr. Frank W. Whitemore to clinical associate professor of neuropsychiatry.
Dr. Frederick W. Hoffbauer to assistant professor of medicine.
Dr. Thomas Lowry to clinical assistant professor of medicine.
Dr. Alphonse E. Walch to clinical assistant professor of medicine.
Dr. James K. Anderson to clinical assistant professor of surgery.
Dr. Willard D. White to clinical assistant professor of surgery.
Dr. Hewitt B. Hannah to clinical assistant professor of neuropsychiatry.

MISSISSIPPI

New Assistant Dean at University of Mississippi.—Dr. James B. Looper, professor of anatomy at Mississippi, has been appointed assistant dean of the University of Mississippi School of Medicine, University.

State Medical Election. — Dr. Benjamin L. Crawford, Tylertown, was chosen president-elect of the Mississippi State Medical Association at its annual meeting, May 12, and Dr. Ellis LeRoy Wilkins, Clarksdale, was installed as president. Dr. Thomas M. Dye, Clarksdale, is the secretary. The 1944 meeting will be held in Jackson, May 9-10.

MISSOURI

Personal. — Dr. Herbert S. Breyfogle, a fellow in legal medicine at Harvard Medical School, Boston, has been appointed instructor in pathology at the Washington University School of Medicine and pathologist to the St. Louis City Hospital. He will serve also as pathologist to the coroner of St. Louis County.

State Medical Election.—Dr. Curtis H. Lohr, St. Louis, was chosen president-elect of the Missouri State Medical Association at its recent annual meeting and Dr. Andrew W. McAlester Jr., Kansas City, was installed as president. Dr. Ralph L. Thompson, St. Louis, is the secretary-editor. The 1944 meeting is planned for Kansas City.

Dr. Muench Released.—Newspapers report that Dr. Ludwig O. Muench, St. Louis, was released on June 6 from the federal prison at Terre Haute, Ind., after serving six years on a conviction of using the mails to defraud. In 1935 Dr. Muench was found guilty of unlawfully and fraudulently making out, signing and certifying a fraudulent birth certificate. In 1936 he was charged by indictments in nine counts with wilfully, knowingly, unlawfully and feloniously using and causing to be used the United States mails to defraud and obtaining money and property by means of false and fraudulent pretenses. In 1937 his license to practice medicine was revoked by the state board of health for unprofessional and dishonorable conduct.

NEW JERSEY

Dr. Leverett Bristol Named State Health Director.—Dr. Leverett D. Bristol, Montclair, health director of the American Telephone and Telegraph Company since 1929, has been appointed health director of New Jersey for a four year term. If he accepts, Dr. Bristol will succeed Dr. Jesse Lynn Mahaffey, Camden, who has held the office for the past twelve years. Dr. Bristol was born in Chicago in 1880 and graduated at Johns Hopkins University School of Medicine, Baltimore, in 1907. After practicing medicine in St. Paul, Dr. Bristol went to the Syracuse (N. Y.) University College of Medicine in 1913 as associate professor of bacteriology. From 1914 to 1916 he was professor of bacteriology at the University of North Dakota School of Medicine, Grand Forks, and director of the laboratories of the state health department. For a year in 1916 he was a member of the faculty of Harvard Medical School, Boston. He served as state commissioner of health of Maine from 1917 to 1921 and professor of preventive medicine and public health at the University of Minnesota Medical School, Minneapolis, for a year in 1922. He was director of the New York State Health Demonstrations from 1923 to 1929, when he became health director of the American Telephone and Telegraph Company. He is a member of the Council on Industrial Health of the American Medical Association. Dr. Bristol is a member of a number of health groups and at one time served as president of the New Jersey Health and Sanitary Association and the Montclair Council of Social Agencies.

NEW YORK

Outbreak of Sore Throat Among Hospital Employees.—An outbreak of 23 cases of sore throat, most of them quite severe, among interns and employees of a hospital in the upstate area was recently reported to the state department of health. The illnesses were thought to be from a common source, since all the persons involved ate in the hospital dining rooms. There were no attacks among the patients and only one among the group of 255 nurses, who ate their meals in separate rooms. Of particular importance was the observation that, with the exception of one person, all those affected drank large quantities of milk daily. This person did not drink milk during the week of the outbreak but did occasionally drink milk and use cream in coffee and on various foods. A survey of the milk handling procedure in the hospital disclosed certain inadequacies especially in the washing of milk containers. Laboratory study disclosed that in all of 10 cases the individuals were carrying hemolytic streptococci in their throats, and a throat culture of the hospital milk handler also proved positive. According to *Health News*, it is believed that the outbreak was due to contamination of a portion of the milk.

New York City

Promotions at Cornell. — Dr. McKeen Cattell, associate professor of pharmacology in charge of the department, Cornell University Medical College, has been promoted to professor of pharmacology and head of the department. Dr. John M. McLean has been promoted to professor of clinical surgery (ophthalmology).

Coordinating Committee for Nutrition Work.—Grace MacLeod, Ph.D., has been named in charge of a special planning committee to carry out the city nutrition program originally set up by the department of health to disseminate information in the best use of the available food supply in terms of a well balanced diet. The special planning group will be part of the coordinating committee sponsoring the program.

Academy of Medicine Receives Endowments. — The New York Academy of Medicine recently announced the establishment of two new funds to assist in the support of its educational projects. One, the George R. Siedenburg Memorial Fund, was established to defray expenses in connection with lectures given at the academy. The second is an endowment in perpetuity of the Graduate Fortnight and was created by R. Thornton Wilson as a memorial to his wife, Frances Elizabeth Wilson.

OHIO

Pharmacy Dean Joins Winthrop Company.—Edward D. Davy, dean of the School of Pharmacy, Western Reserve University, Cleveland, has been appointed director of the pharmaceutical division of Winthrop Chemical Company with headquarters in Rensselaer, N. Y. Mr. Davy has been associated with Western Reserve for twenty-one years, serving first as professor of pharmaceutical chemistry and becoming in 1940 dean of the school of pharmacy. From 1930 to 1940 he served on the Committee of Revision, U. S. Pharmacopeia.

Physician Honored.—A portrait of Dr. Elizabeth Campbell was recently unveiled in Christ Hospital, Cincinnati, in recognition of her forty-one years' service as a member of the staff. Dr. Campbell in 1909 organized the Cincinnati Visiting Nurse Association, in 1917 the Cincinnati Social Hygiene Society, serving as its first president, and in 1932 the Cincinnati Committee on Maternal Health. In 1942 Dr. Campbell was given an honorary life membership in the American Social Hygiene Association, having served as a member of its board from 1925 to 1936 and from then until 1938 as vice president.

Promotions at Western Reserve. — John Paul Quigley, Ph.D., associate professor of physiology at Western Reserve University School of Medicine, Cleveland, has been named professor of gastrointestinal physiology, and Edward Muntwyler, Ph.D., associate professor of biochemistry, professor of experimental biochemistry. Dr. Quigley, who received his Ph.D. at the University of Chicago in 1929, has been a member of the staff of Western Reserve since 1929. He had previously served at the University of Georgia, Augusta, University of Alberta, Edmonton, and the University of Chicago. Dr. Muntwyler received his Ph.D. at the State University of Iowa, Iowa City, in 1928, joining Western Reserve in the same year. He had been an assistant in biochemistry at Iowa from 1924 to 1927.

TEXAS

Southwestern Medical Foundation School of Medicine.—The registration of students on June 21 marked the official opening of the Southwestern Medical Foundation School of Medicine, Dallas. The medical school originated through the Southwestern Medical Foundation, which, under its charter, was authorized to carry on medical education and research. The new school is housed temporarily in the Alex Spence Junior High School, the accommodations to be available until September 1. After this period the school of medicine will be quartered in temporary wooden buildings for the duration of the war. Dr. Donald H. Slaughter is acting dean of the medical school and professor of pharmacology and chairman of the department. Dr. Edward H. Cary is the president. The faculty is composed of a large number of teachers formerly on the staff of Baylor University School of Medicine, now removed to Houston. The Southwestern Medical Center will ultimately occupy 25 acres of land between Parkland Hospital and Hines Boulevard purchased in 1942 by the foundation.

This site augments the 11 acres occupied by Parkland Hospital. This year trustees of the foundation invited the citizens of Dallas to provide an initial $1,500,000 to launch the new school. The directors of the Dallas Chamber of Commerce and Citizen's Council endorsed the project and pledged a fund of $100,000 annually for not less than ten years toward the operation of the school and medical center. The Southwestern Medical Center plans eventually to have at least ten million dollars in buildings, and the goal for its endowment has been set for fifteen million dollars.

VERMONT

Dr. Goodman Named Professor of Pharmacology at Vermont.—Dr. Louis S. Goodman, assistant professor of pharmacology, Yale University School of Medicine, New Haven, Conn., has been appointed professor of pharmacology and physiology and chairman of the department at the University of Vermont College of Medicine, Burlington. Dr. Goodman graduated at the University of Oregon Medical School, Portland, in 1932 and has been a member of the staff at Yale since 1935.

GENERAL

Board Examinations.—Oral examinations including the subspecialties will be given by the American Board of Internal Medicine in New Orleans on August 10 and 11. The schedule is full for this examination. The oral examination including subspecialties will be held in San Francisco on September 16-18. Applications must be filed on or before August 15.

Diploma Lost.—Dr. Arthur A. Marmor, Denver, reports that his diploma issued to him in June 1942 by the University of Colorado School of Medicine has been lost. According to Dr. Marmor the diploma was inside a suitcase which was stored in a room at the U. S. Marine Hospital, Norfolk, Va. The suitcase was stolen sometime during the year ended July 1943.

Otorhinologic Society.—On May 27 the American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery was incorporated. The society was organized on Oct. 17, 1942 to create a body of qualified physicians who are specialists in otorhinolaryngology and who have training and experience in plastic and reconstructive surgery. Officers of the group are Drs. Romeo A. Luongo, Philadelphia, president; Morris S. Bender, New York, vice president; Jacob Daley, New York, secretary, and Nathan Settel, New York, treasurer.

Brochure on Roentgenology of the Heart.—The Medical Department of the Equitable Life Assurance Society of the United States recently prepared an educational brochure on Roentgenology of the Heart. This is being distributed on request without charge to members of the medical profession by the Picker X-Ray Corporation, 300 Fourth Avenue, New York. The booklet serves as a complete atlas for the subject, carrying illustrative charts and text. The object of this brochure is to review some of the methods for determining the heart size and to indicate the sphere of usefulness of roentgen examination in various types of heart disease. Certain phases which are not discussed in detail, such as fluoroscopic and kymographic study of the cardiac pulsations, and contrast visualization of the heart chambers, are referred to in an appended reading list.

New Industrial Hygiene Officers.—The National Conference of Governmental Industrial Hygienists at its meeting in Rochester, N. Y., May 24-27, elected Dr. Paul A. Brehm, Madison, Wis., chairman; Manfred Bowditch, Boston, vice chairman, and J. J. Bloomfield, Washington, D. C., secretary-treasurer. Officers of the American Industrial Hygiene Association chosen for the coming year include Helmuth H. Schrenk, Ph.D., Pittsburgh, president; Mr. Bloomfield, president-elect; Edgar C. Barnes, Pittsburgh, secretary, and John B. Littlefield, Pittsburgh, treasurer. The American Association of Industrial Physicians and Surgeons chose the following officers: Drs. Harvey Bartle, Philadelphia, president; Frederick W. Slobe, Chicago, president-elect; Melvin N. Newquist, New York, and Loyal A. Shoudy, Bethlehem, Pa., vice presidents, and Edward C. Holmblad, Chicago, treasurer and managing director. The officers of the three groups were selected at the first joint meeting on May 24.

Special Society Elections.—At an election of officers of the American Board of Neurological Surgery, May 6, Dr. Howard C. Naffziger, San Francisco, was chosen chairman, Dr. Max M. Peet, Ann Arbor, Mich., vice chairman and Dr. Paul C. Bucy, Chicago, secretary-treasurer.——Dr. Alexander R. Stevens, New York, was chosen president-elect of the American Association of Genito-Urinary Surgeons in June and Dr. Benjamin S. Barringer, New York, was installed as president. Dr. Charles C. Higgins, Cleveland, is the secretary.——At the annual meeting of the American Ophthalmological Society in June Dr. S. Judd Beach, Portland, Maine, was chosen president-elect and Dr. John Green, St. Louis, was installed as president. Dr. Walter S. Atkinson, Watertown, N. Y., is the secretary. The next annual session will be held in Hot Springs, Va., May 29-31.——Dr. Alice Woolley, Poughkeepsie, N. Y., was chosen president-elect of the American Medical Women's Association at its annual meeting in June and Dr. Zoe A. Johnston, Pittsburgh, was installed as president. Dr. Eva M. S. Carey, Pittsburgh, is the secretary.——Officers of the Society of American Bacteriologists are Rebecca C. Lancefield, Ph.D., New York, president; Ira L. Baldwin, Ph.D., Edgewood Arsenal, Md., vice president, and William C. Frazier, Ph.D., Madison, Wis., secretary-treasurer.

LATIN AMERICA

Blood Banks in Brazil.—A blood bank was recently established in Rio de Janeiro. Another one is being organized in Fortaleza, Ceará.

Pan American Ophthalmologic Congress Postponed.—Announcement is made of the postponement of the Pan American Congress of Ophthalmology, which was scheduled to be held in November in Montevideo.

Courses on War Surgery.—Courses on war surgery were opened recently at the Instituto Benjamin Baptista, rua Frei Vaneca, 94, Rio de Janeiro, by the Syndicate of Surgeons of Rio de Janeiro, under the auspices of the Department of Health of the National Army.

Aztec Medal to Americans.—The medal of the Aztec Eagle for services and work on military medicine was recently awarded in Washington, D. C., to Drs. Edgar Erskine Hume and Tomás Cajigas, Washington, D. C., honorary members of the Academia Nacional de Medicina of Mexico. Dr. Francisco Castilla Nájera, the ambassador of Mexico in the United States, presented the medals to Dr. Hume and Dr. Cajigas.

Centennial Anniversary of Chair of Legal Medicine.—Ceremonies were recently held in the Faculty of Medicine of the University of Havana in celebration of both the one hundredth anniversary of the establishment of the chair of legal medicine and toxicology of the faculty and the twenty-fifth anniversary of Dr. Raimundo de Castro y Bachiller as regular professor of the chair. A feature of the celebration was the unveiling of a plaque dedicated to Dr. de Castro y Bachiller by the members of the chair and of the museum of legal medicine and by the pupils and friends of Dr. de Castro.

FOREIGN

Wellcome Museum of Medical Science and Historical Medical Museum.—In answer to many inquiries, an announcement has been issued concerning the Wellcome Museum of Medical Science and the Wellcome Historical Medical Museum. They are and will continue to be housed in the Wellcome Research Institution, 183-193 Euston Road, London, N.W. 1. Although the Wellcome Research Institution building suffered considerable damage by enemy action, its structure was unharmed and the museums can quickly be put into shape again as soon as labor and materials become available after the war.

Vitamins in Northern Russia.—Scurvy has been eliminated in Kolyma, one of the northernmost districts of the Union of Socialist Soviet Republics, through the use of antiscurvy preparations which are produced of local raw materials in a factory there. According to the *Information Bulletin* of the Embassy of the Soviet Union, vitamin C is extracted from the stunted cedar and syrups, and jams with a high vitamin content are manufactured from the northern wild rose and various berries, which grow abundantly in the valleys of rivers flowing through the taiga. The factory furnishes surrounding districts with the products. Thousands of liters of juices and wines are also produced.

CORRECTION

Dr. Reifenstein's Name Omitted from Cardiology List.—In announcing the program of Wartime Graduate Medical Meetings arranged by Syracuse University College of Medicine in THE JOURNAL June 26, page 608, the name of Dr. E. C. Reifenstein, professor of medicine, was erroneously omitted from the list of teachers in connection with the course in cardiology.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 19, 1943.

Consultant Criticism of the Government's Proposals for a State Medical Service

In the House of Lords the government scheme for a state medical service was severely criticized. Lord Derwent said that an ancient and honorable profession would be degraded from its high calling and thwarted in its best efforts to improve itself if it was turned into a band of salaried functionaries. Further, the ordinary citizen would lose by being put into the hands of an indifferent and perhaps tired and harassed functionary on a local government body. Two leading consultants followed. Viscount Dawson of Penn (consulting physician to the London Hospital) said that the government had introduced a spirit of haste and hustle instead of proceeding gradually. It would be disastrous if doctors were to be regarded as agents to control monetary benefits in the interests of the social security fund. We should not pull up the existing system by the roots until we were sure we had something good to replace it. Freedom for initiative and individual responsibility were the life blood of the medical profession, who could ill fit into a bureaucratic machine. The only chance of the acceptance of the local authority as the ultimate administrative agent was to have at the elbow of each area authority an advisory council consisting of representatives of the government hospitals and the voluntary hospitals, with a considerable proportion of physicians. The medical profession would not consent to be pawns on the local government chessboard; they would not consent to the government of a highly skilled profession by laymen. Lord Moran (president of the Royal College of Physicians) said that it was essential that all the activities concerned with health should come under one department and not under six, as at present. He had in mind a medical council which should consider policy with the minister of health, would meet regularly and publish uncensored reports. A second essential was that the conditions under which the rank and file of the profession worked must be made as perfect as possible. If doctors combined, eight or nine together, and saw patients in a house built for the purpose and suitable for diagnosis, with a consultative service at their elbow, they would breathe again the atmosphere of their student days, and this would be a great gain to the community. It would be quite useless to try to dragoon them to work under local authorities unless assurances were given that there would be no interference with the working of their profession. The personal relation between doctor and patient would be imperiled if some of the arrangements suggested were carried out. A good consultative service was essential, and at the present time there were not enough consultants, and those available were not distributed according to the needs of the community.

Replying for the government, Lord Snell said that any proposal would be carefully examined and no hasty decision would be taken. It was not his experience that doctors were reluctant to become servants of a local authority. The government had made no final decisions about the suggestion that the medical profession might be turned into a state salaried service. A free choice of doctor was desirable wherever that was possible, but he was not among those ultraloyal souls who would prefer to die under the care of a doctor whom he knew rather than be cured by a perfect stranger. The government was resolved that while there should be no irresponsible haste there would also be no unreasonable delay.

Eve's Rocking Method of Artificial Respiration

In 1932 Dr. F. C. Eve of Hull, England, described a new method of artificial respiration which, unlike all previous methods, works by the force of gravity. It has been adopted on our warships as the method of choice. Our naval surgeons found Schafer's method—the one in vogue—seldom successful. Eve points out that Schafer based it on experiments on the normal subject on whom it works well, and his claim holds that when the pressure on the chest is relaxed the same volume of air as that expelled must pass in again. But in cases of drowning—the principal contingency for which artificial respiration is used—the inspiratory recoil may be lost. The lack of elasticity is due to loss of tone in the diaphragm, which has become flaccid. In some countries Silvester's method is preferred because the bony thorax has some resilience apart from muscle tone. Schafer's method relies on tone; Eve's method is independent of tone.

In Eve's method the victim of drowning is laid face downward on a stretcher and is well wrapped with blankets above and below. His wrists and ankles are lashed to the handles. Then he is hoisted on a trestle or sling and rocking is begun. The first tilt should be head down and steep (50 degrees) and should produce full expiration by the weight of the abdominal contents pressing on the diaphragm. It will also force aortic blood through the coronaries and empty the stomach and lungs of water. Then full inspiration is produced by tilting the foot end down to 50 degrees. The rocking is done a dozen times a minute through an angle of 45 degrees each way. The method is safe and can be done by anybody. During any delay in getting the stretcher it is recommended that Schafer's method be used until the rocking can be started.

Great Deterioration in German Vital Statistics

The *Times* states that recently published statistics of mortality in German cities show a steadily deteriorating health of the urban dweller, especially in the later months of 1942. The following German official figures refer only to the large cities of "Greater Germany" with a total population of 24,500,000. Compared with the corresponding months of 1941, infant mortality rose by 17 per cent during the last quarter of 1942, to 69 per thousand live births. For the whole year the rate was 66 against 59 for 1941. This contrasts with a record low rate of England and Wales of 49 during 1942. Among children aged 1 to 5 years—another sensitive index of health—the number of deaths rose sharply in 1942 to 7,236. In previous years the numbers had been 6,404 in 1941, 6,062 in 1940 and 5,670 in 1939. Thus the number of deaths has steadily increased during the war. School children aged 5 to 14 also show a similar increase, but adolescents seem to be more affected than any other group. For ages 15 to 20 the mortality showed a rise of 38 per cent compared to 1939. The numbers were 4,159 in 1942, 3,192 in 1941, 3,126 in 1940 and 3,023 in 1939. Contributing to these significant upward trends in children's mortality were sharp increases in the number of deaths from diphtheria and scarlet fever. The deaths from tuberculosis showed a sharp rise. From all forms there were in the German cities nearly 5,500 more deaths in 1942 than in 1939. The death rate per thousand at all ages was 24 per cent higher in 1942 than in 1939, and the rise was more rapid in 1942 than in 1941.

A Lower Birth Rate

The latest figures show a dramatic fall in the birth rate. For the large German cities the number of births in 1942 declined by 80,000 from the figure of 419,000 in 1940 and the rate per thousand of population fell to 13.9 compared with 17.3 in 1940. In the last quarter of 1942 the rate was as low as 12.7. The experience of the German cities is borne out by the rate for all areas of Greater Germany, which declined from 20.4 in 1939-1940 to 15.2 in 1942, a loss of approximately 550,000 live births.

AUSTRALIA

(From Our Regular Correspondent)

June 15, 1943.

Parliamentary Joint Committee on Social Security

The Parliamentary Joint Committee on Social Security was appointed "to enquire into and from time to time report upon ways and means of improving social and living conditions of the people of Australia and of rectifying anomalies in existing legislation." During the past few months the committee has been taking evidence from members of the medical profession in the different states on the question of nationalization of medical and ancillary services. The questionnaire submitted to witnesses as a basis for the presentation of evidence took this form:

1. What is your conception of the medical, hospital and health services required by the people of Australia, and how and under what conditions do you consider such services should be provided?

2. Are you familiar with, and which, if any, of the following do you consider suitable for application in Australia: (*a*) the proposal of the National Health and Medical Research Council for a salaried medical service; (*b*) the proposal of the federal council of the British Medical Association in Australia for a general medical service in Australia; (*c*) medical, hospital and related benefits as in operation in New Zealand; (*d*) national health insurance?

3. Do you consider any of the following services could and/or should be introduced during the war? (*a*) the whole or any portion of any such scheme as you favor; (*b*) any other medical, health, hospital or welfare service or benefits; or alternatively (*c*) that any financial provision should be made for services or capital expenditure after the war; (*d*) if your answer to the foregoing is in the affirmative, can you give details?

4. Have you any proposals regarding the following which you would like to submit and which might be included in a comprehensive health scheme or as an instalment of it: (*a*) child welfare; (*b*) maternal welfare; (*c*) tuberculosis; (*d*) hospital benefit scheme ; (*e*) hospital accommodation and organization; (*f*) group practice; (*g*) national fitness; (*h*) any other health service or benefits, and which of these, if any, do you consider should be introduced: during the war? after the war?

5. Have you any suggestions as to the means that should be adopted to secure the introduction and efficient administration of a comprehensive health scheme in Australia, or any part of such scheme, and the cooperation of all interested parties?

The committee has more than once insisted to witnesses that it has no preconceived plan and that it intends to sift available evidence in a search for the most suitable scheme of medical services for Australia.

Problems of War Neurosis

The effects of war neuroses and problems arising in the rehabilitation of discharged soldiers are discussed in a report prepared by the Society of Returned Medical Officers of Queensland, of which Dr. Jarvis Nye is president. The report states that the biggest readjustment the discharged soldier has to make is that of resuming personal responsibility for his own livelihood. Men should be discharged from the army as soon as it becomes evident that they will not again become efficient soldiers. The disabled soldier should be trained to an occupation at the earliest possible moment, and the maximum of training time should be spent on useful and gainful work. With regard to pensions, the report states "We wish it to be clearly understood that we consider that the commonwealth is under definite obligation to give adequate pensions, but we definitely deplore the psychological handicap which a pension bestows on any soldier, who, by grit and determination, could have avoided it." In many cases the mere granting of a pension is shelving official responsibility. Far more attention should be given to rehabilitation. The Repatriation Commission, with its years of experience, is the logical body to deal with the problem of the serviceman. The rebuilding of social background is considered of major importance for the success of any plan for repatriation and rehabilitation.

Services Medical Merger Planned

There is an acute shortage of hospital staffs for the civilian population in Australia. Hospitals in all the states are forced to keep large numbers of beds unoccupied because of the inadequacy of their nursing, domestic and laundry staffs. Unless the situation is relieved, many metropolitan and country private hospitals will soon be forced to close down.

It has been suggested that considerable manpower could be made available for the civilian population by merging the medical and nursing personnel of the services into one combined service. Under the present system there are in many towns separate hospitals for the army and the air force, and this entails much unnecessary duplication of the work of the services' medical and nursing personnel.

The director general of manpower (Mr. W. C. Wurth) has discussed a scheme for a unified medical and nursing service with the navy, army and air force authorities, who have agreed to investigate its possibilities and to inform him of their views as soon as possible. One direct effect of the scheme will be a reduction in any further intake of nurses for the fighting services.

Invitations to American Medical Officers

Invitations have been extended to medical officers of the armed services of the United States to attend all scientific meetings of the Australian branches of the British Medical Association. In Queensland they have been offered various other facilities including the use of the branch library and have been invited to attend postgraduate courses arranged by the Queensland Postgraduate Committee. During a weekend course held recently in Brisbane several American medical officers took part as lecturers in the program. Arrangements have also been made for the regular supply of copies of the *Medical Journal of Australia* to each medical unit of the United States Army in Australia.

Marriages

ERLOND H. HEDRICK to Miss Myrtle Adele Wade, both of Beckley, W. Va., in Baltimore, June 23.

J. HARRY DUNCAN, Hazlehurst, Ga., to Miss Mary Jane Martin of Union City, Tenn., in June.

JOHN S. STEWART, Warren, Pa., to Miss Annie M. Rainwater of Florence, S. C., June 19.

THOMAS A. HEDRICK, Baltimore, to Miss Jane Miller House at Mercersburg, Pa., June 5.

JAMES BALLEW, Americus, Ga., to Miss Martha Maxine Elliott of Atlanta, June 27.

ALBERT M. WOLFE, Orangeburg, S. C., to Miss Anna Lou Black in Bowman, June 15.

THOMAS H. DAVIDSON, Casper, Wyo., to Miss Elaine Carroll of Ottawa, Ill., June 21.

JOHN H. ABBOTT to Miss Eleanor J. Gilmore, both of Allentown, Pa., recently.

JOSEPH W. KRYSTOSEK to Miss Josephine Lobacz, both of Chicago, July 11.

JACK MASUR to Miss Barbara Forsch, both of New York, June 28.

Deaths

Leslie Tillotson Webster, member of the Rockefeller Institute for Medical Research, New York, died at his home in Scarsdale, N. Y., July 12, aged 48.

Dr. Webster was born in New York in 1894. He completed his studies at Amherst College in 1915 and graduated at Johns Hopkins University School of Medicine, Baltimore, in 1919. After a year as resident pathologist at the Johns Hopkins Hospital and assistant in the department of pathology at the medical school Dr. Webster joined the Rockefeller Institute for Medical Research, first as assistant in the department of pathology and bacteriology and later as associate and associate member. He had been a member since July 1, 1934.

Through his work on the mechanism of the spread of disease in animal populations, Dr. Webster was largely responsible for the establishment of the special branch of epidemiology known as "experimental epidemiology." In investigations extending over a period of fifteen years he developed, by selective breeding, strains of mice that manifested a ten thousand-fold variation in their susceptibility to a given infectious agent. By setting up mouse populations in which the natural resistance of all the individuals was known, he demonstrated that the course of an epidemic in the population was determined by the relative proportions of susceptible and resistant animals that had been introduced into the group. This work emphasized the importance of the host factor in the spread of disease, which was the theme of his De Lamar lecture in 1935.

Dr. Webster had also engaged extensively in investigations of rabies and of epidemic virus diseases in man, devising tests for the early diagnosis of rabies and for determining quantitatively the potency of antirabic vaccines. He developed a concentrated vaccine, containing the virus killed by ultraviolet light, which gives effective protection following the injection of a single dose into animals. After the publication of his book on Rabies, the Dog Writers' Association voted him for 1943 its annual award for "the person who over a long period of time has performed meritorious work in the field of dogs." Because of his interest in encephalitis, at the outbreak of the war Dr. Webster was invited to participate in the work for the Commission for Neurotropic Virus Diseases of the U. S. Army. In this field he and his associates have made significant contributions to the specific etiology and diagnosis of the various types of human encephalitis by improving the methods of immunologic differentiation of the infectious agents.

At the time of his death he was chairman of the National Research Council's Committee on the Maintenance of Pure Genetic Strains for use in experimental biology.

Dr. Webster held membership in numerous scientific groups, including the Society for Experimental Biology and Medicine, American Society for Experimental Pathology, American Epidemiological Society, American Association of Pathologists and Bacteriologists, Society of American Bacteriologists, the Harvey Society, the American Association for the Advancement of Science and the American Public Health Association. In 1935 he received the price of 1,000 francs from the Faculty of Medicine of the University of Berne, Switzerland, for his research on encephalitis.

His published works covered experimental epidemiology, the spread of epidemics, poliomyelitis, encephalitis, rabies and resistance to infectious diseases.

George Thomas Palmer ✠ Springfield, Ill.; Northwestern University Medical School, Chicago, 1898; at one time assistant director and acting chief of tuberculosis, state department of public health; formerly health officer of Springfield; specialist certified by the American Board of Internal Medicine; past president of the Sangamon County Public Health Nursing and Public Health Association; member and for ten years president of the Illinois Tuberculosis Association; member of the American College of Chest Physicians, the Institute of Medicine of Chicago, American Trudeau Society and the Union League Club of Chicago; served as a director of the National Tuberculosis Association; past president of Illinois State Conference of Charities and Correction; president and medical director of the Palmer Sanatorium; a member of the staffs of the Memorial and St. John's hospitals; designated examiner for tuberculosis of the U. S. Veterans Bureau; at one time on the editorial staff of the *Journal of the Outdoor Life*; aged 68; died, June 14, of cerebral hemorrhage.

Benjamin Rush McClellan ✠ Xenia, Ohio; Miami Medical College, Cincinnati, 1884; member of the House of Delegates of the American Medical Association in 1911, 1913-1914, 1916-1917, from 1919 to 1923 and from 1925 to 1941; past president of the Greene County Medical Society; vice president of the Ohio State Medical Association in 1903, president in 1906-1907 and for many years a member of various committees; fellow of the American College of Surgeons; member of the state medical board from 1915 to 1922; past president of the Greene County Historical Society and the Rotary Club; a captain in the medical corps of the U. S. Army during World War I, serving as chief of the surgical staff at Debarkation Hospital number 2, New York City; in 1898 established the McClellan Hospital, where he had been surgeon and chief of staff; dean of the medical and surgical staff of the Ohio Soldiers' and Sailors' Orphan Home; aged 83; died, June 5, in Williamsburg, Va., of coronary arteriosclerotic heart disease.

Arthur Eggleston Davis ✠ Scranton, Pa.; Medico-Chirurgical College of Philadelphia, 1911; fellow of the American College of Physicians; formerly vice president of the Medical Society of the State of Pennsylvania; past president of the Lackawanna County Medical Society; at one time director of public health of Scranton; served in the medical corps of the U. S. Army during World War I; on the staffs of the Scranton State Hospital and the West Side Hospital; consultant in cardiology at Farview (Pa.) State Hospital and the Mercy Hospital; aged 56; died, May 2, of coronary heart disease.

George Herbert Allen ✠ Newark, N. J.; New York Homeopathic Medical College and Flower Hospital, New York, 1910; on the staff of the East Orange General Hospital, where he died, May 6, of chronic myocarditis, aged 57.

John H. Andrews, Buffalo; Medical College of Ohio, Cincinnati, 1883; aged 86; died, April 12, of arteriosclerosis and chronic myocarditis.

Seth Fenelon Arnold, Boston; Tufts College Medical School, Boston, 1908; for five terms a member of the city council; formerly a member of the state house of representatives; served in the U. S. Navy during World War I; aged 64; died, May 9, of a self-inflicted bullet wound.

Herbert Atkins ✠ Pratt, Kan.; University Medical College of Kansas City, Mo., 1910; past president of the Pratt County Medical Society; formerly county health officer; councilor of the Eleventh District of the Kansas Medical Society; served during World War I; aged 62; died, April 10, of coronary thrombosis.

Samuel Lee Battles, Washington, D. C.; George Washington University School of Medicine, Washington, 1906; aged 71; died, May 18, of cerebral hemorrhage.

John Irving Beattie ✠ San Jose, Calif.; Cooper Medical College, San Francisco, 1905; served during World War I; president of the Santa Clara County Medical Society; aged 59; on the staff of the San Jose Hospital, where he died, May 7, of cerebral hemorrhage.

Ralph Linwood Benjamin ✠ St. Anne, Ill.; Rush Medical College, Chicago, 1902; vice president of the American Association for the Study of Goiter; aged 64; chairman of the surgical section of St. Mary's Hospital, Kankakee, where he died, May 10, of injuries received when his automobile was struck by a train.

Charles C. Berlin ✠ Wapakoneta, Ohio; Medical College of Ohio, Cincinnati, 1898; for many years secretary of the Auglaize County Medical Society; director of the Peoples National Bank; president of the library board; a former member of the board of education; aged 71; died, May 3, of acute coronary disease.

William Anderson Black, Asheville, N. C.; Memphis (Tenn.) Hospital Medical College, 1895; aged 88; died, May 18, of pneumonia.

Ray Wellborn Blackmar ✠ Jacksonville, Fla.; Tulane University of Louisiana School of Medicine, New Orleans, 1919; member of the American Urological Association; aged 55; died, April 21.

Robert Eugene Blake, Bakersfield, Calif.; University of California Medical School, San Francisco, 1933; aged 40; died, May 4.

Eric Thorston William Boquist, Minneapolis; University of Minnesota Medical School, Minneapolis, 1916; served in the medical corps of the U. S. Navy; aged 51; on the staff of the Swedish Hospital; chief medical officer of the Minnesota Soldiers' Home Hospital, where he died, April 26, of coronary occlusion.

Arthur E. Broga, Oneida, N. Y.; Eclectic Medical College of the City of New York, 1882; member of the Medical

Society of the State of New York; served on the staff of the Oneida City Hospital; aged 90; died, April 17, of cerebral hemorrhage.

Charles H. Brown, Fair Play, Mo.; St. Louis University School of Medicine, 1903; member of the Missouri State Medical Association; past president of the Dallas-Hickory-Polk Counties Medical Society; for many years president of the board of education; aged 68; died, April 28, in the Springfield Baptist Hospital, Springfield, of cerebral thrombosis and arteriosclerosis.

Jackson Tucker Brown, Ragland, Ala.; Birmingham Medical College, 1897; member of the Medical Association of the State of Alabama; formerly local surgeon for the Southern Railway Company; aged 77; died, May 8, in a Birmingham hospital.

Meritt Chesteen Brumley, Jeffersontown, Ky.; University of Louisville Medical Department, 1893; aged 80; died, May 2, of nephritis.

William Wiley Bryan, Hamilton, Miss.; Memphis (Tenn.) Hospital Medical College, 1909; aged 62; died, April 24.

Gulick O. Bundy, Barton, N. D.; St. Louis College of Physicians and Surgeons, 1904; aged 86; on the staff of the Good Samaritan Hospital, Rugby, where he died, April 29, of carcinoma of the bladder.

Benjamin Wade Burleigh, Ragan, Neb.; Northwestern University Medical School, Chicago, 1905; aged 79; died, April 9, in the Holdrege (Neb.) Hospital of myocarditis.

Charles Wesley Burrill ✠ Kansas City, Mo.; Chicago Medical College, 1872; an Affiliate Fellow of the American Medical Association; Civil War veteran; aged 97; died, April 28.

Walter F. Carver ✠ Albion, Ind.; Fort Wayne College of Medicine, 1892; secretary of the Noble County Medical Society; in 1916 third vice president of the Indiana State Medical Association; president of the board of the town council for twenty-one years and county coroner for several terms; aged 76; died, May 11, in the McCray Memorial Hospital, Kendallville, of empyema of the gallbladder.

John Augustine Casey, Bridgeport, Conn.; Cornell University Medical College, New York, 1918; resident physician at the Hill Side Home for fourteen years; aged 52; on the staffs of the Bridgeport Hospital and St. Vincent's Hospital, where he died, May 8, of Laënnec's cirrhosis of the liver.

Lowell Newton Clyne, McLeansboro, Ill.; Chicago Medical School, 1939; member of the Illinois State Medical Society; aged 32; died, May 9, at St. Genevieve, Mo., in an airplane accident.

Frank Michael Condron ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1919; aged 47; died, May 8, of cerebral hemorrhage and hypertension.

Warren Cox Daly, Rochester, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1902; member of the Medical Society of the State of New York; aged 68; on the honorary staff of the Genesee Hospital, where he died, May 2, of arteriosclerotic and hypertensive heart disease.

Herman P. Daniels ✠ Wichita, Kan.; Northwestern University Medical School, Chicago, 1892; served on the staff of the Wichita Hospital; aged 74; died, May 6, of myocarditis.

Sylvester James Deehan, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1902; aged 66; died, May 12, in the Memorial Hospital of heart disease.

Horace William Delesdernier, Danielson, Conn.; University of Vermont College of Medicine, Burlington, 1885; aged 92; died, May 8, of arteriosclerosis and prostatitis.

Charles Wladimir Dubin-Alexandroff, Philadelphia; Temple University School of Medicine, Philadelphia, 1918; served in the medical corps of the U. S. Army during World War I; aged 63; died, May 2.

Clarence Swan Duner ✠ Chicago; Rush Medical College, Chicago, 1917; a member of Selective Service Board number 14; served in the U. S. Navy during World War I; on the staff of the South Shore Hospital; aged 50; died, May 28, of congestive heart disease.

Angus L. Emerson ✠ Hernando, Miss.; Memphis (Tenn.) Hospital Medical College, 1893; past president of the De Soto County Medical Society; past vice president of the Mississippi State Medical Association; for many years health officer of De Soto County; member of the board of trustees of the Baptist Memorial Hospital, Memphis, Tenn.; a surgeon for the Illinois Central Railroad; aged 78; died, May 9, of cerebral hemorrhage.

Louis Ferber ✠ Brooklyn; University and Bellevue Hospital Medical College, New York, 1927; assistant in medicine at the Brooklyn, Jewish and Kings County hospitals; aged 41; died, May 9, of coronary sclerosis.

Oscar George Finkle, Coral Gables, Fla.; Columbia University College of Physicians and Surgeons, New York, 1918; aged 55; died, May 2, of gastrointestinal hemorrhage and duodenal ulcer.

Charles Marc Gilmore ✠ Beacon, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1919; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association and the Association for Research in Nervous and Mental Disease; aged 47; medical director of the Craig House, where he died, May 15, of carcinoma of the colon.

Henry L. Henderson, Astoria, Ore.; Eclectic Medical Institute, Cincinnati, 1882; American Medical College, St. Louis, 1888; formerly mayor of Astoria; on the staff of St. Mary's Hospital; aged 85; died, April 27, of coronary thrombosis.

Samuel T. Henderson, Fort Wayne, Ind.; Physio-Medical College of Indiana, Indianapolis, 1896; aged 69; drowned in St. Mary's River, May 3.

George Earl Hermence ✠ Marshalltown, Iowa; State University of Iowa College of Medicine, Iowa City, 1912; on the staffs of the Evangelical Deaconess Home and Hospital and the Thomas Mercy Hospital; aged 54; died, April 25, in Conrad of cerebral hemorrhage.

Kendall James Hocker, Millville, Del.; Baltimore University School of Medicine, 1898; member and past president of the Medical Society of Delaware; past president of the Sussex County Medical Society; also a druggist; formerly postmaster; served as acting assistant surgeon in the U. S. Public Health Service; consultant physician to the Milford (Del.) Memorial Hospital; aged 66; died, April 24, of heart disease.

James B. Hodge, Detroit; Detroit Homeopathic College, 1906; member of the Michigan State Medical Society; served on the staff of the Grace Hospital; aged 73; died recently of a hip fracture received in a fall.

Edgar Lee Hughes ✠ Commodore, Pa.; Jefferson Medical College of Philadelphia, 1909; for many years physician for the New York Central Railroad coal mining division; aged 58; died, April 8, of coronary occlusion.

Charles Worley Jones ✠ Olympia, Wash.; St. Louis College of Physicians and Surgeons, 1903; fellow of the American College of Surgeons; served during World War I; on the staff of St. Peter's Hospital; at one time physician in charge of the Elma (Wash.) General Hospital; aged 63; died, April 25, in Tumwater of coronary occlusion.

Rudolph G. Kellner, Seattle; College of Physicians and Surgeons, Baltimore, 1904; aged 71; died, April 19.

August Kuhlmann ✠ Melrose, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; served on the staffs of the Melrose and St. Cloud (Minn.) hospitals; for twenty-five years health officer of Melrose; aged 67; died, April 4, of bronchial asthma.

Frank B. Lansdowne, Kenosha, Wis.; Missouri Medical College, St. Louis, 1897; for several years served as coroner of Kenosha County; aged 67; on the staffs of the Kenosha Hospital and St. Catherine's Hospital, where he died, April 19, of carcinoma of the lung with metastases to the brain.

John Joseph Mahaffey ✠ Philadelphia; Temple University School of Medicine, Philadelphia, 1938; school inspector; aged 32; on the staffs of the Memorial Hospital, Roxborough and the Temple University Hospital, where he died, May 1, of pneumonia.

Edward J. Martens, St. Louis; Marion-Sims College of Medicine, St. Louis, 1897; aged 73; died, May 6, of heart disease.

Charles William Martin, Hot Springs National Park, Ark.; Hospital College of Medicine, Louisville, Ky., 1905; aged 69; died, May 5, of myocarditis and cardiovascular syndrome.

James O. Matthews, Clinton, N. C.; University College of Medicine, Richmond, Va., 1897; member of the Medical Society of the State of North Carolina; at one time state senator; aged 75; died, May 4.

Aristides John Mavromatis ✠ Newark, Del.; Columbia University College of Physicians and Surgeons, New York, 1929; aged 53; member of the staff of the Delaware Hospital, Wilmington, where he died, May 3, of coronary thrombosis.

Marvin Wilson McLarty, Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1909; member of the Medical Association of Georgia; aged 64; died, April 27, in the Crawford W. Long Memorial Hospital of heart disease.

Davis Dennis Mehigan ✠ Milwaukee; Marquette University School of Medicine, Milwaukee, 1913; a surgeon for the city police department; served during World War I; on the staffs of the Misericordia and St. Joseph's hospitals; aged 52; died, April 26, in Rochester, Minn., of carcinoma.

Luther Michael ✠ San Leandro, Calif.; Medical College of Ohio, Cincinnati, 1884; formerly city health officer; for many years physician for the Western Pacific Railway; served on the staff of the Peralta Hospital, Oakland; aged 79; died, April 25, of uremia.

Ananias D. Miller, Mount Pleasant, Pa.; Eclectic Medical Institute, Cincinnati, 1889; formerly member of the state legislature and director of the school board; on the staff of the Henry Clay Frick Memorial Hospital; aged 82; died, April 23, of cerebral hemorrhage.

Georgia S. Cruickshank Motz, Buffalo; University of Buffalo School of Medicine, 1898; aged 69; died, April 29, of coronary thrombosis and pulmonary embolism.

Charles Clinton Moyar, Pittsburgh; Jefferson Medical College of Philadelphia, 1905; aged 61; died, April 28.

Richard J. Muenzner, Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1900; member of the State Medical Society of Wisconsin; aged 67; on the staff of St. Joseph's Hospital, where he died, April 20, of abscess of the liver.

William Simons Overton ✠ Binghamton, N. Y.; Long Island College Hospital, Brooklyn, 1887; also a pharmacist; at one time owner of the Moore-Overton Hospital; formerly on the staff of the Binghamton City Hospital; aged 78; died, May 17, at Sag Harbor, L. I., of coronary thrombosis.

Martin Ringwalt ✠ Rohrerstown, Pa.; Jefferson Medical College of Philadelphia, 1880; aged 85; died, April 1.

David G. Roy, Chicago; Hering Medical College, Chicago, 1904; member of the Illinois State Medical Society; served on the staff of the Englewood Hospital; aged 74; died, March 18, of heart disease.

Frank Cassius Sibley, Carmi, Ill.; Beaumont Hospital Medical College, St. Louis, 1900; St. Louis University School of Medicine, 1903; member of the House of Delegates of the American Medical Association in 1917; member of the Illinois State Medical Society; served during World War I; aged 68; died, May 7, in Little Rock, Ark., of pneumonia.

John Edward Cronham Snyder ✠ Hoboken, N. J.; New York University Medical College, New York, 1896; formerly a druggist; aged 67; died, May 14, of heart disease.

William Sonneborn, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1890; aged 79; died, May 1, in the Philadelphia General Hospital of arteriosclerosis.

Enos S. Spindel, Springfield, Ill.; Eclectic Medical Institute, Cincinnati, 1899; formerly a member of the state board of health; aged 73; died, May 25, in St. John's Hospital of injuries received in an automobile accident.

Maurice Stayer, Johnstown, Pa.; Medico-Chirurgical College of Philadelphia, 1905; member of the Medical Society of the State of Pennsylvania; served on the staff of the Conemaugh Valley Memorial Hospital; aged 66; died, May 4, of coronary thrombosis.

Franklin Pierce Stevenson, Houston, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; aged 73; died, April 23, of cerebral hemorrhage and bronchopneumonia.

Thomas Newcomb Stone ✠ Haverhill, Mass.; Harvard Medical School, Boston, 1903; president of the Pentucket Medical Association 1941-1942; a captain in the medical corps of the U. S. Army during World War I; on the staffs of the Hale and Benson hospitals; chairman of the Municipal Planning Board; served many years as school physician; aged 63; died, April 21, of carcinoma of the rectum.

Joseph E. Stults, Fort Wayne, Ind.; Fort Wayne College of Medicine, 1886; twice elected Allen county coroner; aged 86; died, May 6, in the Lutheran Hospital of chronic myocarditis and chronic nephritis.

Robert Lee Summers, Des Moines, Iowa; Southwestern University Medical College, Dallas, Texas, 1910; aged 61; died, April 9, in the Broadlawns Polk County Public Hospital of hypertensive cardiovascular disease.

Robert Clive Sutherland, Penns Grove, N. J.; Jefferson Medical College of Philadelphia, 1916; member of the Medical Society of New Jersey; formerly on the staffs of the Salem County Memorial Hospital, Salem; aged 60; died, April 23, of pulmonary edema and cerebral hemorrhage.

Ezekiel Chester Swarthout, West Salem, Wis.; Bellevue Hospital Medical College, New York, 1879; aged 87; died, May 10, of cerebral hemorrhage.

Isadore Bennett Swickley ✠ Braddock, Pa.; St. Louis University School of Medicine, 1937; served on the staffs of the Montefiore Hospital, Pittsburgh, and the Braddock Hospital; aged 33; died, April 10, of hypertension and heart disease.

Horace Rowe Taylor ✠ Whitbourne, Newfoundland; University of Buffalo School of Medicine, 1912; member of the Medical Society of the State of New York; medical officer in charge of the Markland Hospital; aged 55; died, April 23, of coronary thrombosis.

Frank Martin Tukey ✠ Bridgeport, Conn.; Harvard Medical School, Boston, 1894; past president of the Fairfield County Medical Society; served on the staff of the Bridgeport Hospital; aged 72; died, April 24, of cerebral thrombosis and arteriosclerosis.

William Alonzo Vincent, Belle Plaine, Iowa; Rush Medical College, Chicago, 1881; Civil War veteran; at one time on the staff of the Rochester (Minn.) State Hospital; formerly mayor of Belle Plaine; aged 96; died, April 20, of hypostatic pneumonia.

Charles M. Wanzer, Cincinnati; Medical College of Ohio, Cincinnati, 1883; aged 85; died, April 12, of heart disease.

Harry Whitney Wheaton, Baltimore; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1917; for many years a member of the city health department; served in France during World War I; member of the staffs of the University and South Baltimore General hospitals; aged 51; died, April 24, in the Bon Secours Hospital of acute circulatory collapse following spinal anesthesia.

Lyle Gordon Young, Van Buren, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1925; member of the Arkansas Medical Society; draftee examiner for the Crawford County Selective Service System; aged 43; died, April 26, of coronary occlusion.

John S. Ziegler, Washington, D. C.; University of Maryland School of Medicine, Baltimore, 1878; member of the Medical Society of the State of Pennsylvania; aged 84; died, March 1.

DIED WHILE IN MILITARY SERVICE

Kirby Knapp Bryant ✠ Surgeon, U. S. Public Health Service, Charleston, S. C.; University of Virginia Department of Medicine, Charlottesville, 1925; medical officer in charge, quarantine and relief stations, district coast guard medical officer; aged 48; died, April 15, in the U. S. Naval Hospital of heart block.

David Hickman Drummond ✠ Major, M. C., U. S. Army, Camp Barkeley, Texas; University of Michigan Medical School, Ann Arbor, 1935; appointed a first lieutenant in the medical corps of the U. S. Army in February 1940 and later promoted as a major; aged 32; died, Oct. 25, 1942, of pneumonia.

Julian Hawthorne Givens, Seattle; Rush Medical College, Chicago, 1931; member of the Washington State Medical Association; captain, medical corps, Army of the United States; aged 39; died, April 22, of bilateral pulmonary embolism at Camp Swift, Texas.

Hugh Joseph McLaughlin, Caldwell, Idaho; Creighton University School of Medicine, Omaha, 1924; diplomate of the National Board of Medical Examiners; served on the staff of the Mercy Hospital, Nampa; county physician, 1940-1941; captain, medical corps, Army of the United States; aged 43; died, April 11, of bronchopneumonia in a Pullman car en route from Caldwell to Camp Adair, Ore.

Irving Roy Rathgeb Jr., Highland, N. Y.; Long Island College Hospital, Brooklyn, 1938; major, U. S. Army (National Guard); aged 29; died, February 23, in an airplane accident near Cairo, Egypt.

Correspondence

ALLOXAN

To the Editor:—In the first editorial of the July 3 issue of THE JOURNAL attention is drawn to the report of Dunn, Sheehan and McLetchie of Glasgow on the specific necrosing action of alloxan, the ureide of mesoxalic acid, on the islet cells of the pancreas and convoluted tubules of the kidney in rabbits. We have confirmed these observations in rabbits and have observed animals which survive injections of alloxan and exhibit only transitory hyperglycemia. Dunn and his co-workers observed no survivals beyond five days.

Furthermore we have observed the effects of alloxan injected intravenously in dogs. Doses of 200 to 500 mg. per kilogram are fatal in one hour to five days. Where death does not occur in a few hours there is first a hyperglycemia followed by hypoglycemia, and by the end of forty-eight hours a pronounced sustained hyperglycemia obtains. The blood nonprotein nitrogen is also definitely elevated. Doses of 50 to 150 mg. per kilogram are not uniformly fatal to dogs and, if the animals survive, a sustained hyperglycemia without uremia may obtain. We have observed 5 dogs with hyperglycemia sustained for two to three weeks.

There is histologic evidence of islet cell injury, but this is not as pronounced as in rabbits. The necrosing action on the epithelium of the convoluted tubules, however, is just as extensive in the dog with high nonprotein nitrogen as it is in the rabbit. In dogs in which the nonprotein nitrogen remained normal, no degenerative changes were found in the kidneys.

Of special interest is the fact that alloxan which was injected into 3 human patients with carcinomatosis, 1 of whom presented an insulin producing islet cell carcinoma of pancreatic origin, was entirely without effect either on the sugar or on the nonprotein nitrogen levels in the blood. No subjective disturbances developed. The doses injected intravenously were 220 (islet cell carcinoma), 400 and 950 mg. per kilogram of body weight. These observations in man are of significance in connection with the question raised by Dunn and his co-workers of the possible relationship of the experimental chemical diabetes of alloxan to diabetes in man.

A. BRUNSCHWIG, M.D. M. G. GOLDNER, M.D.
J. G. ALLEN, M.D. GEORGE GOMORI, M.D.
Department of Surgery, Department of Medicine,
The University of Chicago.

IMMUNIZATION AGAINST TETANUS

To the Editor:—I should like to sound a note of warning to physicians supervising the care of children in summer camps. Many medical blanks filled out by parents prior to the camp season contain a question as to whether the child has been immunized against tetanus. If it hasn't, attempts often are made to do so before the child leaves for camp. If so, it should be remembered that, even if the full number of recommended injections are given, the interval between them is not likely to be as satisfactory as if there were more time. What is more important, however, is the fact that the antitoxin titer probably will not have reached its maximum until after the summer is over, since it has been shown that it requires about four to five months to secure the full antigenic effect of the toxoid. If the child is injured during the summer and there is a possibility of tetanus contamination, it is essential that the physician in charge find out whether the patient had previously been given adequate immunization. If it had, then a stimulating dose of tetanus toxoid should be given at the time of the injury. If, however, the child had been only partially immunized or given the injections just before going to camp, a protective dose of tetanus antitoxin should be administered except in the uncommon instances in which the patient is sensitive to horse serum. In the latter instance spaced injections combined with epinephrine may be used or bovine tetanus antitoxin given.

While active immunization against tetanus is of definite value, further data, as no doubt will be accumulated at the end of the present war, will make it possible for us to decide whether we can rely on it solely for patients with wounds possibly contaminated by tetanus organisms. Until then and whenever in doubt or for patients with badly lacerated or contaminated wounds, it is better to give the protective dose of antitoxin anyhow rather than take a chance on the active immunity engendered by the toxoid injections.

LOUIS TUFT, M.D., Philadelphia.

HOSPITALIZATION FOR THE ALCOHOLIC

To the Editor:—Your readers will be glad to hear that the American Hospital Association has accepted a grant from the Research Council on Problems of Alcohol, a subsidiary of the American Association for the Advancement of Science, and has appointed a subcommittee of its Council on Professional Practice to study the problem of hospitalization and to make recommendations. The help of clinicians who have given thought to this problem will be very welcome.

We have no cause for pride in this neglected field. Our hospitals are, indeed, organized in such an exclusive way that it would almost seem as if they had appointed themselves the representatives of the moral extremists in closing their doors to this peculiarly baffling malady. Every kind of patient has been provided for, in one type of hospital or other, including the patient with leprosy, whose traditional position in society as an outcast has not influenced our planning for his care. The patient suffering from primary alcoholism is left out in the cold (and pneumonia is the worst complication that can come to him, besides serious injury, even to this day) unless he is a man of wealth, in which case he can obtain private care of a palliative sort. If he is poor he is doubly cursed and, for his pains, he gets kicked around by those who, in their hearts, know better. As an urgent case he will get sobering-up treatment in an acute general hospital which does not, however, look deeper when duration of illness complicates the application for admission. We must not lull ourselves into believing that we can dispose of the problem by pleading that we have other work to do for those whom we consider more deserving. The fact is that we have gotten nowhere by stigmatizing and excluding the alcoholic patient. The committee is starting work with the conviction that this kind of patient needs our sympathetic care like all other patients for whom, because of urgency or because of any other reason, we hold our doors and our arms open.

Many hospitals which, because of the war, have been compelled to lower their personnel standards are now employing workers with a history of chronic alcoholism while laying the flattering unction to their souls that they are making a virtue of necessity. As they engage in this enforced task of rehabilitation they are learning, from direct experience, the implications of this malady. We shall find, when peace returns to our troubled world, that it is not always necessary to take the bad with the good in civilization, and that scientific inventions and discoveries which have been put to perverted use can be controlled. So shall we find with the challenge of alcoholism. There must be a scientific solution to this problem without resort to extreme measures, and our hospitals are peculiarly

situated to take the lead, if not for plain moral reasons because they dispose of the best in medical talent, investigative facilities and educational arrangements.

Isolation and segregation of patients, except for contagious disease, should be associated with the past and not with the future. There is a wholesome tendency these days to draw all special hospitals, sanatoriums and asylums into the orbit of the general hospital. Another tendency is the replacement of the term cure by the newer term rehabilitation, since we are committed to the total cure of all patients by total means and their restoration to full, or at least partial, service in the community.

The problem of the alcoholic patient in relation to the hospital must be faced squarely. The committee is now engaged in seeking the facts about the hospitalization of the alcoholic; and, since it will doubtless uncover an almost universal negative attitude toward this problem, we shall expect a series of recommendations for the consideration of the American Hospital Association. Every hospital executive, every clinician, every social worker and every public spirited citizen who has dealt with this problem and is willing to give his best thought to its solution should cooperate with this committee, for only in this way can we do our duty in this forsaken field and escape the condemnation of future generations.

E. M. BLUESTONE, M.D., New York.
Director, Montefiore Hospital, Chairman of the Committee.

ICTERUS INDEX

To the Editor:—In contemporary medical literature we find a lively interchange of the expressions "icterus index" and "icteric index," with the apparent indication that these terms are synonymous. Perhaps it is time to remind authors that the proper expression is "icterus index" and not "icteric index."

In THE JOURNAL of July 3 is an article "Pyuria of the Newborn Treated with Sulfathiazole" by Florman and Bass, in which icterus index is mentioned in case 1 and icteric index in case 2. These terms are not interchangeable and do not mean the same thing. Again, in the text of "The Physiological Basis of Medical Practice" by Best and Taylor, ed. 3, 1943, we find the "icteric index" mentioned on page 780.

Icteric is an adjective and means "relating to or marked by jaundice" (Stedman), while icterus is a noun meaning jaundice. Icterus index means the index or measure of jaundice. We must remember that it is the patient who is icteric (or jaundiced) and not the index. With this thought in mind, I am sure that the expression "icteric index" will gradually fade into oblivion.

SAMUEL WALDMAN, M.D., Brooklyn.

USE OF SULFONAMIDE POWDERS IN OTOLARYNGOLOGY

To the Editor:—In a communication in THE JOURNAL, July 3, page 695, certain disadvantages arising from the local use of sulfonamide powders in otolaryngology are pointed out. The experiences which my associates and I have had with the powder-blower method of therapy have not revealed these disadvantages.

Of 18 patients thus treated, only 5 showed the presence of the drug in their blood streams at the end of twenty-four hours. In none of these did the value exceed 0.9 mg. per hundred cubic centimeters. In addition, the patient must of necessity hold his breath during the treatment or the tracheal reflex will make it impossible to continue with the procedure. Therefore we feel that during treatment little, if any, of the powder is aspirated.

MARVIN S. FREEMAN, Lieutenant, M. C., A. U. S.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, July 24, page 893.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* August 2-4. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Written.* Various centers, Sept. 27. *Oral.* Philadelphia, Nov. 5-6. Final date for filing application is August 16. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE. *Oral.* San Francisco, Sept. 16-18. Final date for filing application is Aug. 15. *Written.* Oct. 18. Final date for filing application is Sept. 1. Asst. Sec., Dr. William A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I.* Locally, Feb. 12. Final date for filing application is Nov. 15. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh, Pa.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral. Parts I and II.* Chicago, Oct. 8-9. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Written and Oral. Part I.* New Orleans, Oct. 8-9. New York, Oct. 15-16. Chicago, Oct. 22-23. San Francisco, Oct. 29-30. Final date for filing application is Aug. 10. *Written and Oral. Part II.* Chicago, Jan. 21-22. Sec., Dr. Guy A. Caldwell, 3503 Prytania St., New Orleans, Louisiana.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago. Oct. 6-9. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Iowa.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Oct. 8. *Oral.* New York City, Nov. 20-21, and Cincinnati, Dec. 11. Final date for filing applications is Aug. 10. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Written.* Locally, Oct. 30. *Oral.* Locally, Dec. 20-21. Final date for filing application is Sept. 30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF SURGERY: *Written. Part I.* Oct. 7. Final date for filing application is Aug. 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Oral.* Chicago, February. *Written.* Various centers, December. Final date for filing application is Nov. 1. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis, Minn.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Basic Science Law (Washington): Constitutionality; Validity of Requiring Examination in Chemistry.—Ellestad sought by virtue of a license to practice chiropractic in Nevada to obtain by reciprocity and without examination a license to practice chiropractic in Washington. The director of licenses of the state of Washington refused to issue the license until the chiropractor had taken and passed the examinations in anatomy, physiology, chemistry, pathology and hygiene required by the Washington basic science act as a condition precedent to licensure to practice any form of the healing art. The chiropractor then brought an action under the Washington declaratory judgment act to test the constitutionality of the basic science act. He alleged that the act was unconstitutional and void because it violated the due process and equal protection clauses of both the state and the federal constitution and further because it was discriminatory in operation, constituted class legislation and was arbitrary and unreasonable. The trial court dismissed the action and the chiropractor appealed to the Supreme Court of Washington.

The specific question presented for our determination, said the Supreme Court, is whether the requirement in the basic science act of an examination in the basic sciences of anatomy, physiology, chemistry, pathology and hygiene, as applied to a person seeking a license to practice chiropractic, deprives such person of the due process of law or of the equal protection of the laws, in violation of the state and federal constitutions. This question has been squarely decided by this court in *State* v.

Wehinger, 182 Wash. 360, 47 P. (2d) 35, in which it was held that the basic science act, as applied to a chiropractor, was constitutional and valid. Seventeen states and the District of Columbia have adopted basic science laws of varying degrees of similarity to our own. Up to the present time the constitutionality of these basic science laws has been questioned in only three states, including our own, and in every instance these laws have been upheld as constitutional. *State* v. *Wehinger*, supra; *State* v. *Broden*, 181 Minn. 341, 232 N. W. 517; *State ex rel. Shenk* v. *State Board of Examiners in Basic Sciences*, 189 Minn. 1, 250 N. W. 353; *State* v. *Mielke*, 202 Minn. 114, 277 N. W. 420; *Stroud* v. *Crow*, 199 Ark. 814, 136 S. W. (2d) 1025. In the Shenk case, supra, in which the law was applied with reference to a naturopath, the Supreme Court of Minnesota said:

> There is claim for petitioner that the basic science law is unconstitutional because abridging his privileges and denying him due process and equal protection of law. The point is without merit. The law does not ban naturopathy. It does regulate it. We are not interested in the extent to which the medical profession may have sponsored the law, nor their motives in doing so. It is enough that, since the days of Hippocrates through those of Galen, Vesalius, and their modern successor anatomists, there has been great progress and splendid accomplishment in their science and the related arts of diagnosis and treatment. Lawmakers everywhere have taken note and have been doing so for a century or more. They began by laws facilitating the procuring of human bodies for dissection. . . . Other laws, regulatory and otherwise, followed. Finally came the restrictive regulation, through licensing, now familiar law everywhere. The basic science statute is the latest addition thereto. It departs somewhat from the older definition of the practice of medicine. Of its newer and broader category of the practice of healing, naturopaths have no complaint on constitutional grounds.

The chiropractor attacked the decision of the Supreme Court of Washington in the Wehinger case, supra, and likewise criticized the decisions by the other courts, on the ground that they failed to take into consideration the fundamental distinction between medicine and chiropractic, and that, on the contrary, they assume that there is no difference between medical anatomy, physiology, pathology and hygiene, on the one hand, and chiropractic anatomy, physiology, pathology and hygiene, on the other. The chiropractor then set forth the medical definitions of the five subjects specified in the basic science law and contrasted them with chiropractic definitions of the same subjects. The five subjects named in the basic science law, said the Supreme Court, pertain to separate and distinct fields of science. These sciences are, in themselves, exact and universal, and their principles operate with uniformity on the human body, regardless of the method of healing, or treatment, employed. The method of healing is simply the practitioner's art, as distinguished from the sciences which deal with the structure, composition, functions, diseases and sanitation of the body. It may be said, broadly, that chiropractic places the emphasis of its study and treatment on the spinal column, including the brain, the spinal cord and spinal nerves, while the school of medicine does not so restrict its field of either study or treatment. Whatever may be the extent of the difference of view between the two schools, whether of kind or of scope, the chiropractor's real objection here is that the basic science law requires him to take an examination which is broader in scope than the chiropractic field of study and treatment. The stumbling block, so far as he is concerned, is thus one of general educational requirements. The various professions, particularly those involving the healing arts, have long been the subject of regulatory legislation setting out requirements for the granting of licenses to practice such professions. As is stated in Rottschaefer, Constitutional Law (1939), pp. 468, 469:

> The requirement of a license necessarily involves a control by the government of who shall be permitted to pursue the licensed business or calling. Its aim is the protection of the public against injuries that it might suffer from the conduct of such business or calling. The state may, therefore, impose any conditions precedent to the grant of its consent which have a real and substantial relation to that objective. . . . The principal field for the application of these principles has been in prescribing minimum standards of professional competence for such professions as the practice of medicine, dentistry, pharmacy, optometry, veterinary medicine, law, accountancy, and many others.

The legislature, continued the court, may therefore prescribe the standard of knowledge required of applicants for license to practice any of the healing arts, and the fact that it is broader in scope than the training which is given in chiropractic schools is not of itself enough to invalidate the legislative prescription. It is sufficient if the requirements have a real and substantial relation to the objective sought, which is the protection of the public health and welfare. It is to be remembered that by the basic science act the legislature has prescribed one examination for all who desire to practice the healing arts, regardless of the school from which they come or the system which they desire to follow. The legislature must have intended thereby to set up a standard of basic, fundamental knowledge required of all practitioners of the healing arts in order to protect the public against incompetent attendance on human ailments.

The court of civil appeals of Texas, continued the Supreme Court, in *Johnson* v. *State*, 267 S. W. 1057, 1061 (1924), in a case in which a chiropractor urged that chiropractic is sufficient in all its requirements thoroughly to prepare the student for this special branch of the healing art and that the right to have this special branch recognized by law was denied by requiring an examination before a medical board, said:

> Regardless of the school of medicine or system of practice followed by the practitioner of medicine in any of these systems, the general welfare of the people demands that such practitioner be able to detect, readily, the presence of disease, and to treat it in some manner recognized as appropriate for its removal. In order that assurance may be had that the one who treats diseases has this requisite qualification, the state has the undoubted right to prescribe a general preparation to be made by one entering such profession, and also to prescribe that he shall have a knowledge of what the legislature may deem the necessary scientific branches of such profession. . . . The fact that it [the law] requires a broader education than is given by the chiropractic college to meet these conditions cannot be urged as a discrimination against such schools of medicine.

The authorities, continued the court, are uniform to the effect that the legislature may adopt such regulations and restrictions of the healing arts as they may consider necessary for the public good, and the courts will not question the wisdom or desirability of such legislative requirements, so long as there is any reasonable basis on which the legislative determination can rest.

The chiropractor contended further that in the Wehinger case previously decided by this court this court did not squarely meet the argument that the addition of chemistry to the list of subjects as one of the basic sciences is an unreasonable requirement. The chiropractor argued that chemistry does not enter into the principle and practice of chiropractic. Chemistry, answered the court, may not enter into the theory and practice of chiropractic, but every law of which we are aware providing for the licensing of chiropractic provides for learning in some subjects other than the theory and practice of chiropractic. The legislature set out the requirements for all practitioners of all schools of the healing art in the basic science act. It is the relation of chemistry to this basic fundamental knowledge that is important and to which we must look, and not the relation of chemistry to the particular school of learning. The court certainly cannot say that it is unreasonable to require a knowledge of chemistry on the part of those who deal with human life and diseases.

The court therefore held that the basic science act did not offend the constitutional provisions relied on by the chiropractor and that, regardless of the wisdom or propriety of the basic science law, its enactment was within the valid exercise of the police power of the state. Accordingly the court affirmed the judgment of the trial court against the chiropractor.—*Ellestad v. Swayze, Director of Licenses, 130 P. (2d) 349 (Wash., 1942).*

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 9-11. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Congress of Physical Therapy, Chicago, Sept. 8-11. Dr. Richard Kovacs, 2 East 88th St., New York, Secretary.

Northern Minnesota Medical Association, Duluth, Aug. 28. Dr. R. N. Jones, 8 Sixth Avenue N., St. Cloud, Secretary.

Oregon State Medical Society, Portland, Sept. 4-5. Dr. Thomas D. Robertson, St. Vincent's Hospital, Portland, Secretary.

Utah State Medical Association, Salt Lake City, Aug. 27-28. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 13-15. Mr. Charles H. Crownhart, 110 East Main St., Madison, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

25:429-572 (April) 1943. **Partial Index**

Studies on Nature of Pain Arising from Ischemic Limb: I. Clinico-experimental Observations. K. Harpuder and I. D. Stein.—p. 429.
Relationship of Congenital Heart Disease to Premature Birth. E. Araya and P. D. White.—p. 449.
Histologic Demonstration of Accessory Muscular Connections Between Auricle and Ventricle in Case of Short PR Interval and Prolonged QRS Complex. F. C. Wood, C. C. Wolferth and G. D. Geckeler. —p. 454.
Acquired Palmar Erythema and Cutaneous Vascular "Spiders." W. B. Bean.—p. 463.
*Pathogenesis of Subacute Bacterial Endocarditis. I. W. Held and A. Lieberson.—p. 478.
*Role of Insulin Free, Histamine Free Pancreatic Tissue Extract in Treatment of Peripheral Arterial Disease. L. W. Gorham and D. R. Climenko.—p. 486.
Pericardial Effusion in Myxedema. G. T. Harrell and C. Johnston.—p. 505.
Aortic Aneurysm with Rupture into Pulmonary Artery. H. J. Schattenberg and W. H. Harris Jr.—p. 512.
Capacigraph-String Galvanometer for Recording Arterial and Venous Pulsations. C. Fenning.—p. 522.

Subacute Bacterial Endocarditis.—Held and Lieberson maintain that subacute bacterial endocarditis is a distinct entity. The vegetative endocarditis with its exudation of fibrin, blood platelets and enmeshed bacteria represents a state of high local and general tissue immunity rather than lowered resistance. The immunity resides in the local endothelial structures as well as in the general reticuloendothelial system. Since the reaction to this bacterial invasion is largely endothelial, the disease may be termed infectious endotheliosis. Subacute bacterial endocarditis occurs in patients with valvular disease, usually rheumatic, but who have acquired a high degree of immunity, so that reinfection, recurrent endocarditis or pancarditis and congestive heart failure do not occur. This increased immunity is responsible for the fact that the patient is not heart conscious even during the attack of acute valvular infection. A transient bacteremia, caused by an upper respiratory infection, tonsillectomy, extraction of an infected tooth or pyelitis, permits secondary invasion and implantation of bacteria, usually of Streptococcus viridans, on the damaged valve. A careful history will reveal that some infection which lowered the general body resistance is usually the beginning of an illness that later develops into subacute bacterial endocarditis. Although the bacteria are able to implant themselves on the damaged valves, they find there an altered tissue reactivity which does not permit much local damage, such as ulceration or extension into the myocardium or pericardium. A more favorable outcome would be likely if the bacteria were not localized in a focus that communicates directly with the blood stream. If embolism does not cut the disease short, death occurs when the local and systemic endothelial systems become exhausted. Subacute bacterial endocarditis is a true endocardial sepsis, for the valve acts as the primary distributing focus of the infection. If the focus can be removed surgically (as in some cases of patency of the ductus arteriosus) or chemotherapeutically before complications set in, there is some hope for cure.

Pancreatic Tissue Extract in Peripheral Arterial Disease.—Gorham and Climenko present proof of the physiologic activity of a new and potent pancreatic extract which is free from insulin and histamine. It has been shown to cause peripheral vasodilatation in the limbs of animals and normal human beings, as measured by an increase in volume and a rise in temperature. The authors report the results obtained with the pancreatic extract in 21 cases of peripheral arterial disease. There were 15 instances in which the response to cold was of the spastic type. These patients reacted especially well to the extract; all of them showed significant increases in limb volume and rises in skin temperature. Symptomatic relief was complete in 8 cases and partial in 4. The 3 patients in the "spastic group" who failed to benefit symptomatically had Buerger's disease or thrombophlebitis. Six patients in the series of 21 gave a normal response to cold stimulation, that is, they showed no evidence of vasospasm. None of these patients received any benefit from injections of the pancreatic extract.

American Journal of Clinical Pathology, Baltimore

13:123-164 (March) 1943

Medicolegal Necropsy. A. R. Moritz.—p. 123.
Examination and Preservation of Nonmedical Scientific Evidence Acquired Incident to Conduct of Medicolegal Postmortem Examination. J. T. Walker.—p. 127.
Importance of Postmortem Examination of Fetus and Newly Born Infant. Edith L. Potter.—p. 133.
Serologic Reactions Following Smallpox Vaccinations. J. M. Lubitz. —p. 139.
Comparative Effects of Six Compounds Administered with Therapeutic Intent to Tuberculous Guinea Pigs. W. H. Feldman and H. C. Hinshaw.—p. 144.
Occurrence of Protozoan-like Cells in Biopsy from Anus. P. H. Hartz and F. R. van de Stadt.—p. 148.
Cyst of Lung Complicated by Aspiration of Animal Hairdust. A. P. Falkenstein, N. N. Crohn and I. Davidsohn.—p. 154.

American Journal of Medical Sciences, Philadelphia

205:469-624 (April) 1943. **Partial Index**

Distribution of Patterns of Ventricular Potential Which Determine Forms and Significance of Electrocardiograms. C. C. Wolferth, Mary Miller Livezey and F. C. Wood—p. 469.
Treatment of Leg Ulcers with Blood and Concentrated Plasma. M. Naidc.—p. 489.
Effect of Accumulation of Blood in Extremities on Venous Pressure of Normal Subjects. J. V. Warren and E. A. Stead Jr.—p. 501.
Cardiac Cirrhosis. C. F. Garvin.—p. 515.
Studies on Penetration of Sulfonamides into Skin: I. Penetration of Sulfonamides from Various Ointment Bases into Intact Skin of Guinea Pigs, and New Method of Analysis of Tissue Sulfonamides. E. A. Strakosch and W. G. Clark.—p. 518.
Effect of Adrenalin and Sympathomimetic Amines on Total Body Water. E. M. Body, G. M. Johnston and Betty Palmer.—p. 532.
Thrombic Activity of Globulin Fraction of Plasma Proteins of Beef, Swine and Human Blood. Margaret A. Adams and F. H. L. Taylor. —p. 538.
Experimental Riboflavin Deficiency in Man. J. J. Boehrer, C. E. Stanford and Elizabeth Ryan.—p. 544.
*Focal Necrosis of Adrenal Cortex. N. Mitchell and A. Angrist. —p. 549
Platelet Red Cell Conjugation Phenomenon and Its Relation to Blood Coagulation. S. Pennell.—p. 562.
Tuberculosis in Industry. H. R. Edwards.—p. 571.

Focal Necrosis of Adrenal Cortex.—The 18 cases of focal necrosis of the adrenal cortex reviewed by Mitchell and Angrist represent lesions discovered during 3,080 routine necropsies. With the exception of 1 case, all lesions were seen microscopically in a single section of the adrenal gland. All lesions were studied on formaldehyde fixed, paraffin embedded material stained with hematoxylin and eosin. Giemsa and Gram stains were done on lesions showing recent changes. Eleven females and 6 males comprise the series. The ages range from 14 months to 84 years. The lesions were of recent origin in 12 instances and showed evidence of chronicity in 5. The acute changes were of 2 types. The first consisted of a focal coagulation necrosis of the adrenal cortex tissue. They were encountered mainly in the zona fasciculata but were also seen in the other two layers and in 1 instance reached to the capsule. Some of the zones of necrosis bore a distinct resemblance to tubercle structures. Complete examination in these cases failed to reveal any active or inactive tuberculosis, and stains for acid fast bacilli were negative. The other type of acute change was one of localized cytonecrosis of a varying number of individual cortical cells. In the literature, focal necrosis of the adrenal has been associated with actual infection or toxic states. Eleven of the reviewed 12 cases showing recent changes had some infectious disease varying from limited lobular pneumonia to extensive suppurative peritonitis. It is the authors' impression that endocrine abnormalities contribute to the evolution of focal necrosis. Diabetes mellitus was noted in 5 of the

cases, and no infectious process was present in 2. In 1 of the latter Cushing's syndrome was fully developed, and the diagnosis of basophilic adenoma of the pituitary was confirmed at necropsy. In the other instance an eosinophilic adenoma of the pituitary was noted. The authors believe that a physiologic component in the production of the necrotic lesions is indicated by the multiplicity of etiologic factors, the apparent significance of endocrine states and the gradation of such lesions in size and nature with involutional physiologic changes in the adrenal, and the negative bacteriologic and virus findings. The possible significance and the relationship of such lesions to Addison's disease and to Waterhouse-Friedrichsen syndrome and to intestinal ulceration is intimated.

American J. Obstetrics and Gynecology, St. Louis

45:547-730 (April) 1943. **Partial Index**

Relationship of Estrogens and Progesterone to Edema of Normal and Toxemic Pregnancy. H. C. Taylor Jr., R. C. Warner and Catherine A. Welsh.—p. 547.
Hyperthyroidism Complicating Pregnancy. C. W. McLaughlin Jr. and L. S. McGoogan.—p. 591.
Action of Morphine in Obstetric Analgesia. F. F. Snyder and E. M. K. Geiling.—p. 604.
Fetal Tachycardia During Labor: Fallible Sign of Fetal Distress. C. J. Lund.—p. 636.
Continuous Caudal Anesthesia in Obstetrics. N. Block and S. Rochberg. —p. 645.
Response of Human Uterus to Epinephrine. W. E. Brown and Violet M. Wilder.—p. 659.
Problem of Abortion. H. J. Olson, A. H. Lahmann, A. C. Mietus and R. M. Mitchell.—p. 672.
Calcium and Quinine in Labor and Postpartum Hemorrhage. B. F. Hart and V. Noble.—p. 692.
Ovarian Autografts. C. L. Kuhn.—p. 704.
Dilation of Urethra for Irritable Vesical Neck. J. C. Potter.—p. 708.
Perineal Repair with Nonabsorbable Suture and Postoperative Sitz Baths. A. P. Hudgins.—p. 711.
Thrombocytopenic Purpura. D. Phythyon and R. E. Lartz.—p. 715.

American Journal of Orthopsychiatry, New York

13:191-380 (April) 1943

Modification of Rorschach Ink Blot Test for Large Scale Application. Marguerite R. Hertz.—p. 191.
Research in Orthopsychiatry: 1942 Symposium. J. Kasanin and others. —p. 212.
Infant Rearing and Problem Behavior. W. Goldfarb.—p. 249.
Orthopsychiatry and Profession of Education: Section Meeting, 1942. O. B. Markey and others.—p. 266.
Dynamics and Treatment of Speech Disorders. J. A. Rose.—p. 284.
Initial Experiences with Psychiatric Clinic in Rural Health Center. W. F. Roth Jr. and F. H. Luton.—p. 290.
Provision of Psychiatric Services to Rural Areas; Round Table, February 1942. W. F. Roth Jr. and others.—p. 297.
Alcoholism in Children. R. S. Lourie.—p. 322.
Effect of Morphine on Rorschach Pattern in Post-Addicts. R. R. Brown.—p. 339.
Grandma Made Jonny Delinquent. C. A. Strauss.—p. 343.
Sex Information of Younger Boys. G. V. Ramsey.—p. 347.
Treatment of Pseudo-Social Boy. Ruth Topping.—p. 353.

American Journal of Surgery, New York

60:1-158 (April) 1943

Foreign Body Localization and Extraction: Description of Method More Accurate Than That Used by Army. L. G. Cole.—p. 3.
Early Laminectomy for Spinal Cord Injury Not Due to Subluxation. F. Kennedy, P. G. Denker and R. Osborne.—p. 13.
Multiple Carcinoma: Clinical Picture, Diagnosis and Prognosis. H. Hellendall.—p. 22.
Tumors in Region of Cauda Equina: Review of 25 Cases. I. Cohen and A. Kaplan.—p. 36.
Internal Fixation Device for Treatment of Intertrochanteric Fractures of Femur. H. H. Thatcher.—p. 44.
Fallacies of Bone Plating. R. D. Joldersma.—p. 50.
Study of Uterine Canal by Direct Observation and Uterogram. W. B. Norment.—p. 56.
Anesthetic Deaths: Five Year Report. F. N. Dealy.—p. 63.
Supernumerary Breasts: With Special Reference to Pseudomamma Type. L. R. Weinshel and N. Demakopoulos.—p. 76.
Littré's Umbilical Hernia: Case Report. W. E. Bird.—p. 81.
Exploration of Common Bile Duct: Review of 165 Cases. D. H. Hooker.—p. 88.
Complications of Thyroid Surgery: Anatomy of Recurrent Laryngeal Nerve, Middle Thyroid Vein and Inferior Thyroid Artery. C. A. Bachhuber.—p. 96.
Complete Reconstruction of Auricle. M. I. Berson.—p. 101.
Sulfathiazole Anuria Cured by Decapsulation of Kidneys: Case Report. M. L. Weinstein and E. L. Adams.—p. 105.
Treatment of Shock and Fresh Wounds. H. H. Ritter.—p. 112.

American Journal of Tropical Medicine, Baltimore

23:141-308 (March) 1943

Tropical Medicine in Navy: Seventh Charles Franklin Craig Lecture. R. T. McIntire.—p. 141.
Observations on Course of Malaria in Children in an Endemic Region. R. B. Hill, F. J. C. Cambournac and M. Pitta Simões.—p. 147.
Morphologic Studies of Plasmodium Falciparum Gametocytes of Different Strains in Naturally Induced Infections. S. F. Kitchen and P. Putnam.—p. 163.
Comparative Morphologic Studies of Plasmodium Falciparum Gametocytes in Variously Induced Infections. S. F. Kitchen and P. Putnam.—p. 189.
Attempts to Hyperimmunize Convalescents from Vivax Malaria. M. F. Boyd and S. F. Kitchen.—p. 209.
Studies on Susceptibility of Certain Poikilothermal Animals to Yellow Fever Virus. H. W. Laemmert Jr.—p. 227.
Further Observations on Amebic and Bacillary Colitis in New Orleans Area. J. S. D'Antoni.—p. 237.
Incidence of Protozoan Parasites of Human Intestine in District of Santo Domingo, Dominican Republic. M. Ravelo-Barré and L. F. Thomen.—p. 243.
Studies on Anopheles Walkeri Theobald Conducted at Reelfoot Lake, Tennessee, 1935-1941. F. B. Bang, G. E. Quinby and T. W. Simpson.—p. 247.
Comparative In Vitro Effect of Various Sulfonamides on Vibro Cholerae. J. F. Sadusk Jr. and Elizabeth Oswald.—p. 275.
Pinworm Infections Among Patients of an Indiana Hospital for Children. W. H. Headlee.—p. 281.
Blackwater Fever: Statistical Report on 25 Cases Seen on Hainan Island. H. F. Burkwall.—p. 285.

Annals of Surgery, Philadelphia

117:481-640 (April) 1943

*Restoration of Blood Flow in Damaged Arteries: Further Studies on Nonsuture Method of Blood Vessel Anastomosis. A. H. Blakemore, J. W. Lord Jr. and P. L. Stefko.—p. 481.
Intractable Duodenal Ulcer: Evaluation of Surgical Procedures. J. W. Hinton.—p. 498.
*Nitrogen Metabolism, Caloric Intake and Weight Loss in Postoperative Convalescence: Study of 8 Patients Undergoing Partial Gastrectomy for Duodenal Ulcers. J. H. Mulholland, Co Tui, A. M. Wright and V. J. Vinci.—p. 512.
Preoperative Scrubbing in Abdominal Surgery: I. Experimental Studies. J. K. Berman, A. D. Houser and W. A. Kurtz.—p. 535.
Late Effects of Craniocerebral Injuries: Consideration of Criteria Necessary to Evaluate Possible Causes. D. Munro.—p. 544.
Mechanisms of Head Injury. A. R. Moritz.—p. 562.
Forensic Aspects of Burns: Special Reference to Appraisal of Terminal Disability. R. H. Aldrich.—p. 576.
Minimal Criteria Required to Prove Causation of Traumatic or Occupational Neoplasms. S. Warren.—p. 585.
Minimal Criteria Required to Prove Prima Facie Case of Traumatic Abortion or Miscarriage: Analysis of 1,000 Spontaneous Abortions. A. T. Hertig, with Collaboration of W. H. Sheldon.—p. 596.
Relation of Trauma to Diabetes. E. P. Joslin.—p. 607.
Relation of Trauma to Syphilis of Nervous System. H. H. Merritt and H. C. Solomon.—p. 623.

Vitallium Tubes for Blood Vessel Anastomosis.—Blakemore and his associates report the use of vitallium tubes as prosthesis in blood vessel anastomosis in dogs. Vitallium is a nonirritating alloy suitable for a vein graft or for bridging an artery or vein defect in a nonsuture method of vessel anastomosis. Carefully controlled experiments on dogs demonstrated that sulfathiazole by mouth contributes greatly to the success of delayed anastomoses of severed vessels in contaminated wounds. They administered sulfanilamide in alternate wounds in a series of seventy-seven anastomoses and found it to be of moderate but definite value. The nonsuture method was shown to be highly successful in anastomosing the small femoral arteries of dogs even in contaminated wounds twenty-four hours after section of the artery and without the use of anticoagulants. Vein graft anastomosis of a severed primary artery in the war wounded would prevent the loss of the extremity by gangrene if the anastomosis remained patent beyond the period of posttraumatic edema, up to fourteen days. Veins taken from one dog continued to function in another when used as transplants to bridge vessel defects. These experiments afford a prospect for the use of preserved veins as grafts for bridging vessel defects in the war wounded as an alternate to the use of homoplastic transplants.

Nitrogen Balance, Caloric Intake and Weight Loss in Postoperative Convalescence.—Mulholland and his collaborators determined the nitrogen balance in 8 cases of duodenal ulcer after partial gastrectomy. Four patients were given the postoperative ward routine of infusions, occasional blood transfusion, and a gradually increased oral feeding. This group served as control. In another group of 4 cases a high caloric

and high nitrogen feeding was given to replace the nitrogen loss, so that at the end of the postoperative period of ten to twelve days a nitrogen surplus was accumulated in the body. The nitrogen balance, body weight and plasma proteins were determined for both groups periodically throughout the convalescent period. The fluid intake and output were followed and the caloric and sodium chloride intakes were noted. The chief sources of nitrogen loss were recorded. The number of days of hospitalization of one group was compared with that in the other. All cases in the control group exhibited a cumulative nitrogen deficit, a progressive loss of body weight and a suggestive progressive fall of plasma protein concentration. In the group in which the caloric and nitrogen balance were maintained by tube feeding with an easily assimilable feeding mixture there were achieved a positive nitrogen balance, a cumulative nitrogen surplus and a progressive rise of body weight and of plasma proteins. There also seemed to be the minimum amount of postoperative asthenia. The authors stress the fallacy of expecting to maintain nutrition by blood transfusions and the necessity of a higher "lower limit of normal" of plasma proteins for surgical patients.

Archives of Ophthalmology, Chicago

29:523-698 (April) 1943

*Hereditary Corneal Dystrophy: History of Condition and Presentation of a Pedigree. S. Schutz.—p. 523.
*Role of Ascorbic Acid (Vitamin C) in Secretion of Intraocular Fluid. J. S. Friedenwald, W. Buschke and H. O. Michel.—p. 535.
Surgical Construction of Lacrimal Passage. L. P. Guy.—p. 575.
Filaria Loa Removed from Upper Lid. S. R. Gifford and M. Konné. —p. 578.
Cataract Complicating Corneal Scars After Perforating Ulcers. B. Samuels.—p. 583.
Allergic Keratoconjunctivitis. C. S. O'Brien and J. H. Allen.—p. 600.
George Berkeley and "An Essay Towards New Theory of Vision." B. Chance.—p. 605.
Effects Other Than Anti-Infectious of Sulfonamide Compounds on Eye. M. E. Alvaro.—p. 615.

Hereditary Corneal Dystrophy.—Schutz directs attention to a hereditary type of corneal dystrophy which he recently observed in a family. Out of 15 adults and 6 children of this family 11 of the adults had the disease. One other member not examined is said by the family to have the disease. None of the 6 children presented the lesions. The condition is a hereditary disease with a mendelian dominance. Consanguinity is not a factor. It affects males and females equally, is bilateral, is more or less symmetrical and is central in position. The corneal surface is smooth and its sensibility is not diminished. There is no history of irritation and no evidence of inflammation. The visual acuity is unaffected in the younger members and only slightly so in the older. The reticular, nodular and ring shaped varieties may coexist in members of the same family and even in the same person. Bücklers classified hereditary corneal dystrophy into the crumblike, the macular and the lattice-like. In the crumblike type the visual acuity and corneal sensibility may be only slightly diminished late in life. It does not lead to blindness. The inheritance is dominant. In all the cases in the present series the disease was of Bücklers' type 1. The prognosis is good. The other two types lead to blindness. The macular type of corneal dystrophy leads to early diminution of visual acuity with diffuse and rapid clouding of the cornea and early loss of sensibility. Inheritance of this type is recessive, and the lesion need not appear in every generation. The lattice-like corneal dystrophy produces irregularity of the cornea early in life with corresponding diminution of visual acuity and early loss of corneal sensibility.

Ascorbic Acid in Secretion of Intraocular Fluid.—Friedenwald and his collaborators demonstrated that the interstitial tissue of the stroma of the ciliary processes contains a group of reducing substances one component of which has been identified as ascorbic acid. These substances act as a mediating system, facilitating the oxidation-reduction interaction between the stroma cells and the stroma-epithelium barrier. Elimination of vitamin C from the diet of guinea pigs leads to the disappearance of this substance from the ocular tissues long before any constitutional symptoms of scurvy develop. The loss of ascorbic acid from the secretory system in the eye results in a decrease in the rate of transfer of basic dyes from stroma to epithelium and in a decrease in the rate of secretion of the intraocular fluid. Ascorbic acid is stored in the ciliary stroma, being reversibly bound by an acidophilic component of this tissue. Oxidation of ascorbic acid by the ciliary epithelium is probably a necessary step in the intraocular secretion of this substance. The secretory mechanism of the ciliary body in the cat conforms in pattern to that in the rabbit and in the guinea pig, but the redox potentials of both epithelium and stroma are considerably more negative than the normal potential of ascorbic acid. Consequently ascorbic acid does not act as a mediator in this system.

Archives of Pathology, Chicago

35:503-648 (April) 1943

*Visceral Lesions Associated with Chronic Infectious (Rheumatoid) Arthritis. A. H. Baggenstoss and E. F. Rosenberg, Rochester, Minn.—p. 503.
Shwartzman Phenomenon in Genesis of Pulmonary Abscess: Experimental Production of Abscesses in Lungs of Rabbits by Means of Strain of Gram Negative Anaerobic Bacilli, Resembling Bacillus Necrophorus, Employed as Lung Preparatory Factor, with Notes on Some Factors Concerned in Pathogenicity. J. Cohen and S. E. Moolten, New York.—p. 517.
Immature Botryoid Tumors of Cervix. E. E. Simpson, Oroville, Calif. —p. 535.
Pathologic Changes in Liver and Kidneys of Guinea Pigs Deficient in Vitamin C. W. O. Russell, St. Louis, and C. P. Callaway, Boston.—p. 546.
Fibrous Pleural Adhesions. E. B. Smith, St. Louis.—p. 553.
Forssman's "Carotid Syndrome": Contribution to Study of Anaphylactic Changes in Nervous System from Standpoint of Pathology. G. A. Jervis. Thiells, N. Y.—p. 560.
Neuroblastoma of Mediastinum with Pheochromoblastomatous Elements. H. R. Wahl and D. Robinson, Kansas City, Kan.—p. 571.
Effect of Mechanical Force on Skeletal Lesions in Acute Scurvy in Guinea Pigs. R. H. Follis Jr., Baltimore.—p. 579.
Histologic Observations on Changes in Brain in Rocky Mountain Spotted Fever. I. M. Scheinker, Cincinnati.—p. 583.
Changes in Magnesium and Chloride Contents of Blood from Drowning in Fresh and in Sea Water. W. W. Jetter and A. R. Moritz, Boston.—p. 601.
Leprosy from Histologic Point of View. G. L. Fite, Bethesda, Md. —p. 611.

Visceral Lesions in Chronic Infectious Arthritis.—Baggenstoss and Rosenberg studied at necropsy the anatomic changes in the viscera of 30 patients with rheumatoid arthritis. The mean age of the patients at death was 37.6 years; the youngest was 9, the oldest 81 years of age; 11 were less than 40. Rheumatic heart disease was present in 16 and other cardiac lesions in 8. Pulmonary diseases present included bronchopneumonia, fibrous pleuritis, bronchiectasis, pulmonary embolism and fat embolism. No characteristic hepatic lesion ascribable to rheumatoid arthritis was observed. The alterations present were hypertrophy, atrophy, chronic passive congestion, fatty change, central necrosis, amyloid deposits, subacute yellow atrophy, healed miliary tuberculosis and the serous hepatitis of Rössle and Eppinger. The lymph nodes and the spleen, though occasionally enlarged during life, showed only various nonspecific inflammatory and degenerative effects: proliferation of reticuloendothelial tissues, degeneration of lymph follicles, amyloid deposits, suppurative lymphadenitis, hypertrophy (of the spleen) and chronic passive congestion. A low grade nonspecific glomerulonephritis was present in 19. Other renal lesions present were chronic or subacute interstitial nephritis, nonsuppurative pyelonephritis, amyloid degeneration, nephrolithiasis with acute pyelitis and dissecting aneurysm of the right renal artery. Various lesions of minor importance were encountered in the other organs.

Gastroenterology, Baltimore

1:335-448 (April) 1943

Military Nutrition and Problems of Supply. G. H. Berryman and W. H. Chambers.—p. 335.
Chronic, Nonspecific, Jejunitis with Unusual Features. W. R. Johnson. —p. 347.
Fat and Vitamin A Absorption in Sprue and Jejunoileitis. D. Adlersberg and H. Sobotka.—p. 357.
Bacteriologic, Epidemiologic, Immunologic and Chemotherapeutic Aspects of Bacillary Dysentery. E. Neter.—p. 366.
Secretion of Acid by Gastric Mucosa. H. W. Davenport.—p. 383.
Physiology of Parietal Cell with Special Reference to Formation of Acid. J. S. Gray.—p. 390.
Chemistry and Mechanics of Hydrochloric Acid Formation in Stomach. F. Hollander.—p. 401.

Illinois Medical Journal, Chicago

83:205-288 (April) 1943

Symposium on Industrial Health: We Have a Job to Do to Improve the Health of the Industrial Worker. D. H. Green.—p. 231.
Urgent Need for Better Local Industrial Health Organization. C. M. Peterson.—p. 234.
Medical Care of Executives. W. C. Alvarez.—p. 236.
What Can We Do to Keep Employees at Work? C. D. Selby.—p. 242.
How the Small Plant Can Conduct a Health Program. M. H. Kronenberg.—p. 247.
Problems in Employing Physically Handicapped. F. H. Albee.—p. 251.
Employing the Physically Handicapped from Employer's Viewpoint. G. P. Wardly.—p. 257.
Effect of War on Maternal Welfare Program in Illinois. F. H. Falls.—p. 259.
Rejected Draftee and His Medical and Social Problems as They Relate to Community. E. L. Strohl.—p. 263.
Clinical Report of 3 Rectal Cases. M. H. Streicher.—p. 265.
Centrally Located Tumors of Frontal Parts of Brain. W. R. Kirschbaum.—p. 267.
Case of Associated Facial and Intracranial Hemangioma. L. B. Shapiro.—p. 272.
Nontuberculous Lesions Simulating Pulmonary Tuberculosis. O. C. Schlack.—p. 275.

Indiana State Medical Assn. Journal, Indianapolis

36:235-282 (May) 1943

Wartime Patient Phases of Industrial Ophthalmology. E. O. Alvis.—p. 235.
Review of Cases Admitted on Eye Service at Riley Hospital from 1936 Through 1942. Mary Alice Norris.—p. 239.
Some Observations on Headaches of Ocular Origin. H. L. Stanton.—p. 243.
Laceration of Eyelids. C. P. Clark.—p. 245.
Eye Injuries in Home. M. Mann.—p. 247.
Undiluted Sulfonamide Drugs in Sinus Surgery. J. J. Littell.—p. 250.
Lake County's Five Year Plan and/or Lake County's All Out Medical Plan. R. Waterson.—p. 252.

Iowa State Medical Society Journal, Des Moines

33:147-208 (April) 1943

Symposium on Pre- and Postoperative Care of Surgical Patient: Preoperative Care in Abdominal Surgery. R. N. Bartels.—p. 148.
Id.: Fluid Requirements of Abdominal Surgical Cases. E. L. Besser.—p. 150.
Id.: General Discussion of Some Aspects of Postoperative Care. R. T. Tidrick.—p. 152.
Effect of Acetylsalicylic Acid (Aspirin) on Gastric Mucosa: Gastroscopic Study. W. D. Paul.—p. 155.
Visible Congenital Maldevelopments of Neurosurgical Character About Head and Spine. O. R. Hyndman.—p. 158.
Cesarean Section at University of Iowa. N. E. Wentsler and J. H. Stout.—p. 166.
Prevention of Recurrent Urolithiasis. R. H. Flocks.—p. 170.
Transportation of Psychotic Patient. F. E. Coburn.—p. 173.
Treatment of Large Stasis Ulcers by Pinch Skin Grafts. E. J. Ringrose.—p. 175.
Neuronitis. A. L. Sahs.—p. 178.
Severe Systemic Disease Occurring Secondarily to Streptococcic Skin Infection in Several Members of Same Family. C. B. McIntosh.—p. 181.
Effect of Acetone on Uptake of Oxygen by Muscle Strips and Liver Slices. Kathyrn K. Krauel and R. B. Gibson.—p. 183.
Excision of Patella: Preliminary Report. S. M. Albert.—p. 184.

Journal of Nutrition, Philadelphia

25:309-410 (April 10) 1943

Vitellin, Casein, Liver and Muscle Tissue as Sources of Phosphorus for Rachitic Rat. R. Bunkfeldt and H. Steenbock.—p. 309.
Nutritional Dermatoses in Rat: VIII. Vitamin A Deficiency. M. Sullivan and Virgina J. Evans.—p. 319.
Nicotinic Acid Storage in Dog at Different Dose Levels of the Vitamin. Susan Gower Smith, R. Curry and H. Hawfield.—p. 341.
*Availability for Human Nutrition of Vitamin C in Raw Cabbage and Home Canned Tomato Juice. Mary M. Clayton and Ruby A. Borden.—p. 349.
Observations on Induced Riboflavin Deficiency and Riboflavin Requirement of Man. R. D. Williams, H. L. Mason, Paul L. Cusick and R. M. Wilder.—p. 361.
Fat Excretion by Normal Children. H. H. Williams, Elizabeth N. Endicott, M. L. Shepherd, H. Galbraith and I. G. Macy.—p. 379.
Effect of High Levels of Pantothenic Acid on Reproduction in Rat and Mouse. A. Taylor, Dorothy Pennington and Juanita Thacker.—p. 389.
Thiamine Assays of Foods Using Rat Growth Method. C. D. Miller.—p. 395.
Effect of Pantothenic Acid on Rate of Intestinal Absorption of Galactose in Rat. J. R. Leonards and A. H. Free.—p. 403.

Vitamin C in Raw Cabbage and Home Canned Tomato Juice.—Clayton and Borden investigated the availability of vitamin C in raw cabbage and home canned tomato juice on four young, healthy subjects. The utilization of the vitamin C of each test food was compared with that of pure vitamin C tablets. The basal diet used was neutral in reaction and the subjects were saturated before each test period. Judging from the results of both blood and urine analyses, the vitamin C of both raw cabbage and tomato juice was utilized as well as, or possibly better than, that in the tablets. An average of 116 Gm. of the cabbage or 208 cc. (⅞ cup) of the tomato juice used in this experiment provided 50 mg. of vitamin C.

Journal of Thoracic Surgery, St. Louis

12:305-396 (April) 1943. **Partial Index**

Bronchial Involvement in Metastatic Pulmonary Malignancy. D. S. King and B. Castleman.—p. 305.
Extrapleural Pneumothorax: Report of 38 Cases. J. G. Russo.—p. 316.
Traumatic Hemothorax with Special Reference to Chronic Persistent Types. H. G. Smithy.—p. 338.
Bronchial Adenoma with Metastasis to Liver. W. M. Anderson.—p. 351.
Thoracoscopy in Pulmonary Tuberculosis. J. Goorwitch.—p. 361.
*Congenital Cysts of Mediastinum: Report of 3 Cases Including a Gastric Cyst. H. A. Carlson.—p. 376.
Self-Retaining Scapula Retracting for Thoracoplasty Without Use of Special Instrument. O. C. Brantigan and T. B. Aycock.—p. 394.

Congenital Cysts of Mediastinum.—Carlson discusses mediastinal cysts and cystic tumors believed to be the result of some aberration in embryologic development. The bronchial and gastrointestinal cysts, the entodermal cysts, differ from teratomas in that they do not contain tissue derived from ectoderm; they reproduce the structures of the bronchus, stomach or bowel; they occupy a posterior position in the mediastinum and often cause symptoms, serious complications or death in early infancy. They are believed to originate from the foregut, the respiratory buds or their derivatives (bronchial cysts) or from the omphalomesenteric duct (gastric and enteric cysts). By contrast, teratomas contain tissue derived from ectoderm (usually mesoderm, often entoderm). They have the structure which the name implies. They arise in the anterior mediastinum and frequently do not produce symptoms for a period of twenty to forty years. They are believed to develop from cells which have become segregated early in embryonic life. The author reports 3 cases: 1. A man aged 23 was found on x-ray examination of the chest to have a tumor mass suspected of being a dermoid cyst. The cyst was removed and was discovered to be a teratoma. 2. An 8 month old male infant had difficulty in breathing and died three days after hospitalization. The necropsy disclosed a bronchial cyst of the mediastinum with compression of the trachea and main bronchi, acute emphysema of the anterior portion of both lungs, acute bilateral hypostatic bronchopneumonia and acute catarrhal tracheobronchitis. 3. An infant aged 4 months had labored breathing and difficulty in swallowing. The removed structure proved to be a gastric cyst. The author discusses exteriorization and drainage of such cysts.

Journal of Urology, Baltimore

49:497-600 (April) 1943

Preparation and Properties of Human Fibrinogen Solutions. H. Neurath, J. E. Dees and Hilda Fox.—p. 497.
Properties of Human Fibrinogen Coagulum: Preliminary Report. J. E. Dees and Hilda Fox.—p. 503.
Experimental Production of Various Renal Vascular Disorders. F. M. Allen.—p. 512.
*Kidney in Hypertension. W. J. McMartin and T. McCurdy.—p. 524.
Primary Carcinoma in Diverticulum of Bladder: Report of 4 Cases and Review of Literature. B. S. Abeshouse and A. E. Goldstein.—p. 534.
Prostatic Obstruction Complicated by Diverticula of Bladder. P. Adams.—p. 558.
Vasitis Nodosa: New Clinical Entity Simulating Tuberculosis of Vas Deferens. J. A. Benjamin, T. D. Robertson and J. G. Cheetham.—p. 575.
Bichloride of Mercury Poisoning. H. A. Reif and H. F. Bramley.—p. 583.
Contribution to Study of Tuberculous Bacilluria. P. F. Albuquerque, C. Da Paz Jr. and F. Magarao.—p. 590.
Genitourinary Lesions in Lymphogranuloma Venereum. W. E. Coutts.—p. 595.

Kidney in Hypertension.—McMartin and McCurdy maintain that hypertension may have its source in one kidney. They cite 4 cases of unilateral renal disease in which hypertension developed. They conclude that hypertension resulting from a disease of one kidney is not the rule but is frequent enough to cause one to bear in mind the urologic tract as the source.

The eyeground changes of hypertensive patients will regress toward normal if the responsible kidney is removed before arteriolar disease of the other kidney gets under way. Urologic examination should be done before referring the hypertensive patient for denervation operations or medical therapy. Patients who have had pyelolithotomy, nephrolithotomy, drainage of perinephric abscess, plastic operation on the pelvis of the kidney, nephropexy and the like should have their blood pressure checked at regular intervals so that the onset of hypertension may be detected early and the source, which may be the kidney previously operated on, removed.

Kentucky Medical Journal, Bowling Green

41:103-144 (April) 1943

Treatment of Pulmonary Tuberculosis as Defense Measure. O. A. Beatty.—p. 107.
Some Problems in Tuberculosis as Seen in a Rural Practice. R. T. Routt.—p. 113.
United States Pharmacopeia and the War. V. E. Simpson.—p. 116.
Cirrhosis of Liver. W. C. Gettelfinger.—p. 119.
Newer Methods of Treatment of Hypertension. L. Bach.—p. 121.
First Aid Care of Fractures. R. T. Hudson.—p. 124.
Fractures of Spine. O. Miller.—p. 125.
Diagnosis and Treatment of Hip Fractures. R. Woodward.—p. 126.
Differential Diagnosis of Gastric Ulcer and Gastric Carcinoma. F. M. Stites Jr.—p. 128.
Observations on Cancer of Stomach. L. W. Frank.—p. 131.
Prolapse of Sigmoid Due to Carcinoma: Report of 2 Cases. M. H. Pulskamp.—p. 135.

Michigan State Medical Society Journal, Lansing

42:241-320 (April) 1943

Poisoning in Infants Due to Common Cough Syrups. J. L. Wilson.—p. 267.
Tertiary Syphilis of Skin and Bone Coexisting with Granulomatous Halogen Skin Eruption. H. Pinkus and L. Zlatkin.—p. 269.
Management of Skull Fractures. H. E. Mock.—p. 273.
Relationship of Anesthesiology to Medical Practice. P. M. Wood.—p. 274.
Cases of Early Syphilis: Suggested Outlines for Ambulatory Intensive Treatment. L. W. Shaffer.—p. 279.
Some Surgical Problems in Ulcer Treatment. C. F. Vale.—p. 283.
Nephritis and Nephrosis. E. T. Bell.—p. 287.
Choice of Operation in Cases Requiring Hysterectomy. W. C. Danforth.—p. 290.
Medical Aspects of High Blood Pressure (Hypertension). I. H. Page.—p. 294.
Therapy of Nevi: Their Relationship to Skin Malignancies. E. F. Traub.—p. 297.

Nebraska State Medical Journal, Lincoln

28:101-132 (April) 1943

Prostatectomy with Minimal Hospitalization without Preliminary Drainage. E. Davis.—p. 105.
Early Care of Facial Injuries. H. N. Boyne.—p. 111.
Pneumonitis Resulting from Gasoline. A. Sachs and R. L. Egan.—p. 114.

28:133-164 (May) 1943

Soft Parts Dystocia. J. P. Greenhill.—p. 136.
Adequate Examinations of Uterine Cervix. R. J. Stearns.—p. 142.
Diagnosis and Management of Ectopic Pregnancies. J. P. Redgwick.—p. 144.
Abdominal Pregnancy (Case History). P. J. Martin and M. E. Grier.—p. 148.
Active Immunization Against Tetanus. J. Thomas.—p. 150.
Bureau of Examining Boards: Its Duties and Functions. Jeanette Crawford.—p. 152.
Recommendations for Venereal Disease Control Program in Industry: Report of Advisory Committee on Control of Venereal Diseases. Otis L. Anderson.—p. 155.

New England Journal of Medicine, Boston

228:443-472 (April 8) 1943

*Diagnosis and Treatment of Ludwig's Angina: Report of 20 Cases. A. C. Williams and W. C. Guralnick.—p. 443.
Survival for Four Years Following Dissecting Aneurysm of Abdominal Aorta. D. W. Wallwork.—p. 451.
Simple Tidal Drainage Unit. D. N. Richards Jr.—p. 452.

Diagnosis and Treatment of Ludwig's Angina.—Williams and Guralnick report a series of 20 cases of Ludwig's angina treated at the Boston City Hospital from June 1939 to June 1942. The mortality in this series was 10 per cent. Mortality in a previous series of 31 patients was 54 per cent. Emphasis is placed on the role of teeth and dental procedures as etiologic factors. Some type of dental lesion was the initiating factor in 18 of the 20 patients (90 per cent). Streptococci were present in all and both streptococci and Vincent's organisms in 8 of the 16 cases in which bacteriologic studies were made. Employment of both cultures and smears taken at operation is urged as a basis for the choice of dressings postoperatively. Zinc peroxide dressings are recommended when anaerobes are demonstrated. The authors advocate radical surgery as soon as the diagnosis is established, exposure of the trachea or a tracheotomy previous to the operation. Intravenous pentothal sodium is the anesthetic of choice. The use of sulfonamide drugs orally or parenterally is strongly favored. Dependence on sulfonamides without surgery, however, is discouraged. Under the regimen advocated the ordinary complications of Ludwig's angina have been eliminated.

228:473-498 (April 15) 1943

*Resting Pulse and Blood Pressure Values in Relation to Physical Fitness in Young Men. L. Brouha and C. W. Heath.—p. 473.
Diabetes Mellitus in General Practice. J. R. Fowler.—p. 477.
Addison's Disease: Report of Fatal Case. H. A. Lawson, I. A. Beck and R. G. Murphy.—p. 480.

Pulse and Blood Pressure in Relation to Physical Fitness in Young Men.—Brouha and Heath made studies on 265 college students. They found a wide variation in the pulse and blood pressure in normal, healthy young men. Although the values far exceed the usually accepted norms, they are nevertheless compatible with normal physiologic reactions to emotional stress and hard muscular work. There is no satisfactory relation between basal pulse, sitting pulse and physical fitness for strenuous exertion in normal, healthy young men. There is no relation between sitting systolic or diastolic blood pressure and physical fitness for strenuous exertion in normal, healthy young men. Emotional factors are largely responsible for high resting pulse rates commonly found during the preinduction medical examination of healthy young men. Resting pulses above 100 and sitting systolic blood pressures above 140 mm. are not exceptional in medically normal subjects when exposed to some emotional strain, and in many of them they accompany an average or good physical fitness for hard muscular work. In normal young men no measurement of pulse or blood pressure, taken at rest, is indicative of capacity to perform hard work. When the resting pulse or blood pressure is unusually high it is recommended that the subject be submitted to a standard amount of strenuous exercise. The estimate of capacity to do hard muscular work should be based on the subject's actual ability to perform it and on the speed of recovery of his heart after exercise rather than on resting values of pulse and blood pressure alone.

New Orleans Medical and Surgical Journal

95:445-492 (April) 1943

Cutaneous Manifestations of Systemic Disorders. A. B. Loveman.—p. 446.
Use and Abuse of Posterior Pituitary Extract in Obstetrics. E. L. King.—p. 450.
Carcinoma of Colon and Rectum: 228 Cases from Charity Hospital of Louisiana at New Orleans from 1935 to 1941. S. A. Romano and W. Trachtenberg.—p. 455.
Results of Gastric Resection in Single Service at Charity Hospital. L. H. Strug.—p. 464.
Successful Suture of Stab Wound of Heart. D. B. Williams.—p. 470.
Histaminase in Treatment of Duodenal Ulcer. G. McHardy and D. Browne.—p. 472.
Sinusitis in Diseases of Lower Respiratory Tract. R. H. Riggs.—p. 475.

New York State Journal of Medicine, New York

43:577-704 (April 1) 1943

Aural, Oral and Laryngeal Tuberculosis. G. E. Wilson.—p. 680.

43:705-800 (April 15) 1943

Pathogenesis of Congenital Anomalies of Intrahepatic and Extrahepatic Bile Ducts: Report of Case of Polycystic Disease of Liver and Case of Atresia of Bile Ducts. S. E. Moolten.—p. 727.
Certain Neuropsychiatric Aspects of Medicine in Emergency. E. H. Adams.—p. 739.
External Use of 30 to 50 Per Cent Sulfur in Petrolatum in Various Dermatoses E. W. Abramowitz.—p. 746.

Northwest Medicine, Seattle

42:95-122 (April) 1943

Soap Lake Water for Treatment of Thromboangiitis Obliterans. J. Uttal.—p. 99.
Psychosomatic Disorders. H. C. Randolph.—p. 102.
Health Education Program for Physical Fitness. O. M. Rott.—p. 105.
Crush Injuries and Crush Syndrome. W. H. Bueermann.—p. 109.
Heredity as Etiologic Factor in Chronic Alcoholism. F. Lemere, W. L. Voegtlin, W. R. Broz, P. O'Hollaren and W. E. Tupper.—p. 110.

Ohio State Medical Journal, Columbus

39:309-396 (April) 1943

Anatomic Basis of Emotion. A. R. Vonderahe.—p. 325.
Primary Cyst of Greater Omentum: Report of Case with Fatal Blood Transfusion Reaction. R. W. Jones.—p. 331.
Congenital Arteriovenous Aneurysm: Report of Case Arising from Superficial Circumflex Iliac Vessels. R. K. Finley and J. M. Shaffer.—p. 334.
Pitfalls in Occupational Disease Diagnosis. P. A. Davis.—p. 337.
Lithopedion: Case Report. L. H. Biskind, S. Goodman and D. S. Wertheimer.—p. 339.
Control of Impetigo in the Newborn. J. K. Hoerner.—p. 341.
Treatment of Pityriasis Rosea. G. W. Binkley.—p. 344.
Pulsating Tumors of Sternum and Occiput Due to Metastatic Carcinoma of Thyroid Gland. W. E. Molle.—p. 346.
Uncommon but Characteristic Sign of Hyperthyroid Disease. H. D. Lang.—p. 348.
Preemployment Physical Examination. A. Randell.—p. 350.
Cyst of Mesentery; Case Report. G. K. Mahl.—p. 351.
Mycotic Aneurysm of Descending Thoracic Aorta. R. B. Miller and J. H. Ogura.—p. 353.

39:397-504 (May) 1943

Clinical Use of Stilbestrol. Z. J. R. Hollenbeck and P. J. Reel.—p. 413.
Horse Serum Neuritis. L. J. Karnosh and E. M. Zucker.—p. 416.
Four Cases of Paratyphoid Fever with Unusual Complications. A. Freedman.—p. 418.
Schizophrenic Reaction Types Simulating Thyroid Disease. J. F. Bateman.—p. 421.
Comparison of Digestibility of Meals Prepared with Animal versus Hydrogenated Vegetable Cooking Fats. C. S. Smith.—p. 425.
Nonsurgical Treatment of Tubal Obstruction. R. M. Inglis.—p. 429.
*Threatened Abortion: Results of Treatment in 140 Cases. W. M. Silbernagel and O. P. Burt.—p. 430.
Sulfonamides in Appendicitis: From Cleveland Appendicitis Survey. J. H. Budd and R. M. Watkins.—p. 433.
Patent Omphalomesenteric Duct. J. E. Morgan.—p. 435.
Carcinoma of Papilla of Vater. E. Sternfeld and W. H. Meffley.—p. 436.
Under What Indications Should Serologic Tests for Syphilis When Positive Be Repeated by Several Technics, Including Complement Fixation and Flocculation, at Least One of Which Is Quantitatively Titered in Order to Evaluate Whether a Positive Serum Reaction Is True or False? B. S. Kline.—p. 439.
Approach to Syphilis in Industry. E. G. Baxter.—p. 441.
Massive Fatal Hemorrhage from Acute Ulcer at Cardioesophageal Junction. T. C. Laipply.—p. 444.

Threatened Abortion.—The results of treatment of 140 patients with threatened abortion in 870 consecutive pregnancies form the basis of this report by Silbernagel and Burt. Vaginal bleeding, with or without cramping, was the only criterion for the diagnosis of threatened abortion. Bleeding due to local lesions was excluded. Basal metabolism determinations were made in every case and sufficient thyroid or strong solution of iodine was administered to bring the basal metabolic rate to approximately plus 5 per cent. At the first sign of bleeding the patient was immediately put on absolute bed rest. No opiates were used. An ice bag to the lower abdomen was used to control pain. If necessary barbiturates were given to provide rest and relaxation. This was the only treatment employed in a control group of 50 patients (35.7 per cent of the series). Of these 47, or 94 per cent, aborted. The authors report their experience with the parenteral administration of progesterone, the intramuscular injection of alpha-tocopherol acetate alone or in combination with the natural tocopherols and synthetic alpha-tocopherol acetate, the oral administration of natural tocopherols or of alpha-tocopherol acetate and the treatment with freshly extracted wheat germ oil by mouth. With the use of progesterone 18.2 per cent went to term. The authors feel that this is not a sufficient percentage of salvage in cases of threatened abortion to warrant the routine use of progesterone. A certain number of abortions are inevitable as the result of maternal, fetal or chorionic causes. Therapy of these is valueless. The intramuscular use of alpha-tocopherol acetate alone produced a salvage of only 20 per cent. Alpha-tocopherol acetate used alone, both intramuscularly and orally, produced a continuation of pregnancy in 66⅔ per cent. The intramuscular use of alpha-tocopherol acetate combined with the oral administration of the natural tocopherols produced a salvage of 85.7 per cent. The oral administration of alpha-tocopherol acetate alone allowed 16.7 per cent of the pregnancies to continue. This was nearly as effective as progesterone alone. The oral use of natural tocopherols produced a salvage of 42.8 per cent and the use of wheat germ oil alone saved 33⅓ per cent of the pregnancies.

Pennsylvania Medical Journal, Harrisburg

46:657-784 (April) 1943

Resumption of Antisyphilitic Therapy Following Postarsphenamine Reactions. H. M. Robinson.—p. 667.
Choice of Time and Type of Operation in Surgery of Early Life. W. E. Ladd.—p. 677.
*Roentgen Treatment of Acute Bursitis of Shoulder. J. H. Harris.—p. 683.
Traumatic Aphakia and Workmen's Compensation Act. J. H. Delaney.—p. 685.
Mental First Aid in Head Injuries. F. H. Lewey.—p. 689.
Indications for Sinus Surgery. J. R. Simpson.—p. 692.
Therapeutics of Heat. M. B. Ferderber and S. Sherman.—p. 695.
Observations on Routine Use of Modified Gwathmey Analgesia. R. B. Wilson.—p. 700.
Silicosis—Medicolegal Problem. P. G. Bovard.—p. 705.
Influenza in Children. G. J. Feldstein.—p. 708.
Cerebrospinal Fever (Meningococcus Meningitis). P. F. Lucchesi.—p. 713.
Review of Results from Herniorrhaphy. G. W. Hawk and E. A. French.—p. 716.

Roentgen Treatment of Acute Bursitis of Shoulder.—Harris reports gratifying results from the roentgen treatment of 40 cases of acute calcified bursitis of the shoulder. The acute cases give the best results. The chronic cases are improved. The therapy consists in daily treatments for three or four days; 250 roentgens as measured in air is given in each treatment. The kilovoltage employed is unimportant, provided sufficient filtration is used. The author used 200 kilovolts with 0.5 mm. of copper plus 1 mm. of aluminum filtration and 120 kilovolts with 5 mm. of aluminum filtration. The results have been equally good. Within twenty-four to thirty-six hours there was definite relief from pain, and by the end of the third day the severe pain has disappeared. There remains a stiffness which gradually subsides. Most patients use the arm in a normal manner in a week to ten days. The calcium is slowly absorbed. In the cases reexamined it has completely disappeared in three to four months.

Physiological Reviews, Baltimore

23:101-184 (April) 1943

Malignancy in Relation to Organization and Differentiation. N. J. Berrill.—p. 101.
Pathways of Glycolysis. A. Dorfman.—p. 124.
Influence of Estrogens and Androgens on Skeletal System. W. U. Gardner and C. A. Pfeiffer.—p. 139.
Chronic Mountain Sickness. C. Monge.—p. 166.

Public Health Reports, Washington, D. C.

58:541-588 (April 2) 1943

Distribution of Health Services in Structure of State Government: Chapter X. State Health Department Organization. J. W. Mountin and Evelyn Flock.—p. 541.

58:589-624 (April 9) 1943

Notes on Relation Between Coliforms and Enteric Pathogens. R. W. Kehr and C. T. Butterfield.—p. 589.
Toxicity of Lead Azide. L. T. Fairhall, W. V. Jenrette, S. W. Jones and E. A. Pritchard.—p. 607.

58:625-660 (April 16) 1943

*Outbreak of Dermatitis from Airplane Engine Covers. L. Schwartz and S. M. Peck.—p. 625.
*Murine Typhus Fever Control. C. R. Eskey.—p. 631.

58:661-688 (April 23) 1943

Reported Whooping Cough Morbidity and Mortality in United States.—p. 661.
Sickness Absenteeism Among Industrial Workers, Final Quarter of 1942, with Note on Occurrence of Bronchitis and Pneumonia, 1933-42. W. M. Gafafer.—p. 677.

Dermatitis from Airplane Engine Covers.—According to Schwartz and Peck, airplane engine covers are being extensively used to replace the usual antirust compounds with which engines are covered before they are shipped to the assembly plant. The covers are made of pliofilm, a material that has been in use for many years with no record of resultant dermatitis. Pliofilm has been recommended as a suitable material for sleeves and aprons to protect workers against industrial skin irritants. A chemical known as R. M. F. was added to the special pliofilm for engine covers to prevent the pliofilm from deteriorating when exposed to light. An outbreak of dermatitis was observed among workers manufacturing airplane

engine covers made from this special pliofilm. Tests revealed that the R. M. F. was the cause. This substance is both a primary irritant and a sensitizer. To prevent further attacks of dermatitis it is suggested that workers handling pliofilm containing the R. M. F. should wear protective sleeves and aprons made of ordinary pliofilm, vinylite, koroseal or laminated cellophane. The hands may be protected by gloves made of washable leather or finely knitted cotton. Persons on the job of heat sealing can protect their faces from the irritant fumes developed during the operation by the use of a protective ointment of the invisible glove type. Workers who continue to have dermatitis after observing the recommended precautions should be removed from further exposure to the material.

Murine Typhus Fever Control.—Eskey states that during the period from 1932 to 1941 approximately 20,000 cases of murine typhus fever were recorded officially in the United States. Although the European or epidemic typhus has a much higher death rate than the murine typhus, the latter should not be regarded lightly. If a patient with murine typhus is more than 60 years old the chances of recovery are not good; young adults are usually acutely ill for two weeks. The febrile stage is commonly followed by a period of convalescence of two months or more before the patient fully regains his strength. Most cases of human infection with the rickettsiae of murine typhus are traceable to typhus infected domestic rats. Control of the disease therefore is based on the difficult task of eradicating the rodent reservoir of infection. During 1941 only 2 per cent of the reported cases occurred in states north of a line extending across the country at the level of the southern boundary of Kentucky. Only 18 per cent of the cases were reported from the area between this line and another line traversing the northern boundary of Louisiana, that is, in the territory between 36° 30′ and 33° north latitude. In the region south of 33° north latitude, murine typhus is most prevalent.

Radiology, Syracuse, N. Y.

40:327-432 (April) 1943

Probable Incidence and Clinical Features of "Virus" Pneumonia. P. S. Rhoads.—p. 327.
Pathologic Changes in So-Called Atypical Pneumonia. O. Saphir.—p. 339.
Primary Atypical Pneumonia of Unknown Etiology. P. V. McCarthy.—p. 344.
Primary Atypical Pneumonia of Unknown Etiology. F. C. Curtzwiler and B. E. Moore.—p. 347.
Atypical Pneumonia of Probable Virus Origin. C. E. Hufford and A. A. Applebaum.—p. 351.
Echinococcus Cyst of Lung. W. A. Evans Jr.—p. 362.
Posterior Displacement of Calcified Pineal in Subtentorial Brain Tumors. L. E. Hawes and S. Mead.—p. 367.
Stereoscopic Method for Localization of Intraorbital Foreign Bodies. E. P. Griffin, C. Gianturco and S. Goldberg.—p. 371.
Study of Roentgen Ray Distribution at 60-140 Kv. P. Z. J. Atlee and E. D. Trout.—p. 375.
Increased Filtration for Diagnostic Purposes. S. J. Hawley.—p. 387.
Dosage Calculations for Various Combinations of Parametrial Needles and Intracervical Tandems. J. F. Nolan and Edith H. Quimby.—p. 391.

Review of Gastroenterology, New York

10:77-140 (Mar.-April) 1943. **Partial Index**

X-Ray Diagnosis of Primary Malignant Tumors of Small Intestine. P. C. Swenson.—p. 77.
Insufficiency of Ileocecal Valve. C. L. Glaessner.—p. 91.
Accurate Abdominal Diagnosis: Peritoneoscopy in Private Practice. R. L. Gorrell.—p. 100.
Histidine-Histamine Antagonism: Possible Mode of Action of Histidine in Peptic Ulcer. L. Pelner.—p. 108.
Practical Interpretation of Gastrointestinal Symptoms, Based on Three Year Clinical Study: Introducing New Concise History Sheet. A. X. Rossien.—p. 112.
*Liver Function in Arthritis, Measured by Hippuric Acid Test. J. S. Hepburn, P. J. Warter and Gladys Rosenstein.—p. 126.
Congenital Absence of Gallbladder: Case Report. C. H. Drenckhahn and J. C. T. Rogers.—p. 128.

Liver Function in Arthritis.—Hepburn and his associates studied the hepatic function of 28 arthritic persons by means of the hippuric acid test. The 28 patients fell into two groups, the osteoarthritic and rheumatoid arthritic. The arthritic in both groups showed no greater deficiency in liver function than would be shown by any other group of patients suffering from a systemic disease.

Surgery, Gynecology and Obstetrics, Chicago

76:385-512 (April) 1943

Delayed Closure of Incisions Made at Closure of Colonic Stomas. J. deJ. Pemberton and B. M. Black.—p. 385.
Panlaryngectomy for Advanced Carcinoma of Larynx. A. Brunschwig.—p. 390.
Effect of Sectioning Various Autonomic Nerves on Rate of Emptying of Biliary Tract in Cat. F. E. Johnson and E. A. Boyden.—p. 395.
Vaginal Hysterectomy. W. C. Danforth.—p. 411.
Experimental Producton of Bronchial Fistula in Rats and Rabbits. A. Carlson and W. E. Adams.—p. 416.
Benign Tumors of Large Intestine: Incidence and Distribution. E. B. Helwig.—p. 419.
Carbamide Sulfonamide Mixtures: Use in Treatment of Compound Fractures and Traumatic Wounds. F. W. Ilfeld.—p. 427.
Tuberculosis of Ankle Joint: End Result Study of 25 Cases. S. S. Houkom.—p. 438.
Some Manifestations of Regional Ileitis Observed Sigmoidoscopically. R. J. Jackman and N. D. Smith.—p. 444.
Effect of Estrogenic Substance on Uterine Motility During Late Pregnancy: An Analysis of 153 Observations Made with Lóránd Tocograph. D. P. Murphy.—p. 446.
Papillary Cystadenoma Lymphomatosum of Parotid Gland. D. W. Robinson and M. S. Harless.—p. 449.
Metastatic Lesions of Sternum. H. B. Macey and G. S. Phalen.—p. 453.
Carbon Dioxide Snow Electrocautery Technic for Occlusion of Arteries: Suggested Application to Arteriovenous Angioma of Brain. J. Ebin.—p. 456.
Total Pneumonectomy. J. Johnson.—p. 460.
Chronic Arthritis. H. Kelikian.—p. 469.
Osteochondromas Arising from Base of Skull. C. F. List.—p. 480.
Results of Nephrectomy on Experimental Renal Hypertension. H. S. Patton, E. W. Page and E. Ogden.—p. 493.
Improved Operative Method for Obtaining Bony Fusion of Great Toe. D. H. O'Donoghue and R. Stauffer.—p. 498.
Dusting Powder Granulomas Following Surgery. W. McK. German.—p. 501.

76:513-640 (May) 1943. **Partial Index**

Intubated Ureterotomy: New Operation for Ureteral and Ureteropelvic Stricture. D. M. Davis.—p. 513.
*Intraperitoneal Administration of Sulfadiazine; with Special Reference to Comparative Study with Sulfanilamide. L. Walter and W. H. Cole.—p. 524.
Congenital Narrowing of Lumbosacral Space. T. H. Vinke and E. H. White.—p. 551.
Comparison of Effects of Tanning Agents and of Vaseline Gauze on Fresh Wounds of Man. J. W. Hirshfeld, M. A. Pilling and M. E. Maun.—p. 556.
Struma Lymphomatosa; Hashimoto's Disease. B. McSwain and S. W. Moore.—p. 562.
*Melanoepithelioma (Melanosarcoma, Melanocarcinoma, Malignant Melanoma) of Extremities. W. H. Bickel, H. W. Meyerding and A. C. Broders.—p. 570.
Schwannomas (Neurilemomas) in Head and Neck. H. E. Ehrlich and H. Martin.—p. 577.
Sulfadiazine Treatment of Burns: Comparative Study. K. A. Meyer and R. Gradman.—p. 584.
Study of Extracellular Water Changes in Pregnancy. L. C. Chesley.—p. 589.
Internal Fixation in Injuries of Ankle. H. G. Lee and T. B. Horan.—p. 593.
*Tannic Acid and Liver Necrosis. J. C. Forbes and E. I. Evans.—p. 612.
Injuries to Larynx and Trachea. R. L. Nach and M. Rothman.—p. 614.

Sulfadiazine and Sulfanilamide Intraperitoneally.—Walter and Cole implanted sulfadiazine crystals in the peritoneal cavity and wounds of 68 patients operated on for various lesions most of which caused peritoneal contamination. A similar procedure using sulfanilamide was carried out on 62 patients. There was an incidence of 4.04 per cent of wound infection in the sulfadiazine group and of 14.05 per cent in the sulfanilamide group. Sulfadiazine appeared superior to sulfanilamide in the prevention of wound infection. One instance of wound disruption and 1 of fatal peritonitis in that series were probably not related to the use of the drug. There were no toxic manifestations and no evidence of delay in wound healing in the sulfadiazine group. A dose of 6 Gm. was adopted as the routine, 4 Gm. being placed in the peritoneal cavity and 2 Gm. in the layers of the wound. The studies on animals and on human beings revealed a much more persistent blood level with sulfadiazine than with sulfanilamide. Sulfadiazine is also less toxic. The longer persistence of the blood level of sulfadiazine over sulfanilamide makes the former drug superior for implantation in the peritoneal cavity and wound layers in a laparotomy. Use of sulfonamides in wounds contaminated by bowel resection has resulted in a much lower incidence of infection, sulfadiazine being superior to sulfanilamide.

Melanoepithelioma of Extremities.—Bickel and his collaborators reviewed the clinical and pathologic material in a series of 155 cases in which diagnosis of melanoepithelioma of an extremity was made at the Mayo Clinic during the twenty-four year period from 1916 to 1939 inclusive. In this series 29.8 per cent of the patients treated by excision survived five years or more. There were many cases in which the lesions were small and the patients were seen in the early stages of the disease. Amputation was the most common type of treatment for cases in which the lesion was more extensive and of a longer duration, yet in this group there was a five year survival rate of 21.1 per cent. None in the group treated by irradiation alone survived three years. A melanoepithelioma may be present for a long time before the seriousness of its nature is recognized. The condition may be activated by meddlesome treatment. The treatment of choice is a wide excision with removal of regional lymph nodes or amputation. When tumors do not appear to be increasing in size or showing evidence of ulceration a wide local excision would appear adequate.

Tannic Acid and Liver Necrosis.—Forbes and Evans point out that subcutaneous administration of tannic acid in rats results in liver necrosis. They suggest that liver necrosis noted in many cases of severe burns may have been due to the toxic action of the tannic acid rather than to toxic products arising from the burned tissue. Observations on six series of rats demonstrated the hepatotoxic action of subcutaneous tannic acid injections. No protective action resulted from either the oral or the subcutaneous administration of sulfanilamide or from the subcutaneous administration of xanthine.

Texas State Journal of Medicine, Fort Worth

38:699-748 (April) 1943

Anal Fistulas: Their Origin and General Management. L. A. Buie.—p. 704.
Surgical Treatment of Hydrocephalus. C. C. Nash.—p. 709.
Heart That Grows Old. J. H. Musser.—p. 710.
Laboratory Observations on Nonspecific Wassermann and Prezone Reactions. M. Owen, B. Brooks and L. M. Tucker.—p. 714.
Pathologic Changes of Thyroid Gland. A. O. Severance and Sylvia Johns.—p. 717.
Clinical Classification and X-Ray Therapy in Acute Pulmonary Infections. R. C. Curtis.—p. 722.
Classification of Acute Pulmonary Infections. T. Smith.—p. 724.
X-Ray as an Aid in Diagnosis of Acute Abdominal Conditions. S. D. Whitten.—p. 726.
Intestinal Obstruction in the Newborn. R. P. O'Bannon.—p. 728.

Virginia Medical Monthly, Richmond

70:227-278 (May) 1943

Emotion and Its Home Front Reaction. B. R. Tucker.—p. 230.
Acute Cirrhosis of Liver. T. D. Davis.—p. 233.
The Kenny Concepts. E. M. Fusco.—p. 236.
Physician's Responsibility in Planned Parenthood. H. H. Ware Jr.—p. 238.
Pulmonary Diseases Caused by Dust. H. F. Easom.—p. 242.
Hypertensive Arterial Disease. E. L. Copley.—p. 244.
*Intra Group Incompatabilities in Whole Blood Transfusions. R. B. Houlihan.—p. 251.
Type 2 Pneumonia Not Responsive to Sulfa Preparations: Case Report. J. P. Kent.—p. 256.
Social Forces Compel Professional Planning for Medical Economy. F. I. Libby.—p. 257.

Intra Group Incompatibilities in Whole Blood Transfusions.—According to Houlihan, an appreciable number of transfusion reactions are caused by intra group incompatibilities. The detection of subgroups A_1 and A_2 should be performed routinely on patients receiving multiple transfusions and on patients in whom incompatibility due to the Rh factor has been eliminated. Most of the intra group reactions are due to Rh incompatibility. Every attempt should be made to employ the present methods for the detection of Rh agglutinogens and agglutinins. Serum containing Rh agglutinins can be used to detect the Rh antigen in donors and laboratory personnel. Rh agglutinins can be detected in the patients' serum by the cross matching tube technic of Landsteiner and Wiener. An attempt should be made to check prior to the transfusion the Rh status of every patient who has had an irregular or pathologic obstetric course, whose history shows previous miscarriages or abortions of unexplained nature or who has given birth to infants with erythroblastosis.

War Medicine, Chicago

3:337-446 (April) 1943

Wound Ballistics: Mechanism of Production of Wounds by Small Arms Bullets and Shell Fragments. G. R. Callender.—p. 337.
Tropical Neuropsychiatry. J. L. McCartney.—p. 351.
Teaching of Physical Medicine in Relation to War Effort. F. H. Krusen and E. C. Elkins.—p. 367.
Classification of Personnel in British Army: Preliminary Survey of Methods. D. McG. Kelley.—p. 386.
Acute Emotional Disturbances in Torpedoed Seamen of Merchant Marine Who Are Continuing at Sea: Their Nature and Incidence. S. Margolin, L. S. Kubie, M. Kanzer and L. Stone.—p. 393.
Effect of Chlorination of Water on Viability of Cysts of Endameba Histolytica. F. J. Brady, Myrna F. Jones and W. L. Newton.—p. 409.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

51:135-176 (April) 1943

Spontaneous Amputation and Subsequent Acute Torsion of Normal Left Fallopian Tube and Fibroma of Right Ovary. C. W. Barrett and A. F. Lash.—p. 135.
Necessity of Repeated Examinations in Fitting of Contraceptive Diaphragms. Nadina R. Kavinoky and Elizabeth U. Brown.—p. 140.
Endocrine Diarrhea: Clinical Review. O. R. Wallerstein.—p. 143.
*Vaginal Tampons in Menstrual Hygiene. J. M. Singleton and H. F. Vanorden.—p. 146.
*Vaginal Tampons for Menstrual Hygiene. K. J. Karnaky.—p. 150.
Endocrine Therapy in Adolescence. E. L. Sevringhaus.—p. 153.

Vaginal Tampons in Menstrual Hygiene.—Singleton and Vanorden sent out a questionnaire on the subject to 3,400 members of obstetric and gynecologic societies and to about 500 doctors in general practice. Physicians were four to one against the use of menstrual tampons. Some few favored or permitted it with limitations, such as during the early and last days of menstruation, for esthetic reasons to dancers, actresses, for athletic events, and the like. There was an almost unanimous opposition to the use of tampons by virgins because of a feeling that it created sex consciousness and stimulated eroticism and the habit of masturbation. The difficulty of application was stressed. Tampons, if used, should be changed frequently, since blood clots often form on the tampon and may therefore cause a back flow of menstrual discharge through the uterus and tubes into the peritoneal cavity; this possible origin of endometriosis was repeatedly stressed. Twenty per cent of the physicians reported instances of pathologic changes varying from a mild vaginitis to a pelvic infection. Many instances of lost or retained tampons were recorded. There appears to be a definite potential source of infection in the habitual or occasional practice of menstrual tamponage. Preexisting infections may become aggravated.

Vaginal Tampons for Menstrual Hygiene.—Karnaky carried out careful studies on 218 women who used tampons during their menstruation for one year and over. No irritation, discharge, vaginitis or cervicitis was found. A series of 42 women were instructed to insert a large tampon night and morning every day in the interval between their periods and during their menstruation. These tests ran from six months to two years. A bacterial culture was taken, the vaginal p_H and the amount of glycogen were determined, and a vaginal biopsy was made and notes on the local examinations were recorded before, during and after the use of the tampons. These observations were carried out at two to four week intervals. With hardly an exception, the findings were favorable. The tampons did not block the flow nor did they irritate the vaginal tissue. Of the 110 young nurses, 95 per cent used tampons with satisfaction all through menstruation. Only 5 per cent could not use tampons in the middle of menstruation because of an excessive flow. The tampons are comfortable and overcome the problem of menstrual odor.

West Virginia Medical Journal, Charleston

39:105-136 (April) 1943

Diabetes in 1942. F. N. Allan.—p. 105.
Fractures of Shaft of Femur (Review of Treatment of Femoral Shaft Fractures). A. R. Lutz.—p. 111.
Nontuberculous Pulmonary Disease. W. V. Wilkerson.—p. 114.
Allergy. L. E. Shrewsbury.—p. 121.

39:137-184 (May) 1943

Problems in Gastric Surgery. R. McGinnis.—p. 137.
Effect of Current Trends in Control of Medicine. E. J. Carey.—p. 146.
Robertson Test for Carcinoma: Preliminary Report. W. L. Hardesty and Betty Love.—p. 151.
Newer Alloys in Surgery. C. S. Venable and W. G. Stuck.—p. 154.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

30:189-288 (Jan.) 1943

Osteogenetic Graft in Tuberculosis of Hip Joint in Childhood. E. D. Telford and J. E. Geddes.—p. 189.
Hydronephrosis of Pelvic Ectopic Kidney. R. H. F. Brain.—p. 191.
*Carcinoma of Lung: Value of Sputum Examination in Diagnosis. F. J. Sambrook Gowar.—p. 193.
Traumatic Cerebral Fungus. J. E. A. O'Connell.—p. 201.
Traction Injuries to Lateral Popliteal Nerve and Traction Injuries to Peripheral Nerves After Suture. W. B. Highet and W. Holmes.—p. 212.
Treatment of Pancreatic Cysts. J. T. Chesterman.—p. 234.
Spinal Analgesia for Prostatectomy: Review of 94 Cases with Novocain Dissolved in Spinal Fluid. R. P. Harbord.—p. 235.
Traumatic Ventricular Pneumocephalus: Case. D. O. Davies.—p. 237.
Acute Diverticulitis of Jejunum. G. H. C. Ovens.—p. 239.
Air Arthrography in Lesions of Semilunar Cartilages. C. H. Cullen and G. Q. Chance.—p. 241.

Sputum Examination in Carcinoma of Lung.—According to Sambrook Gowar, examination of sputum by the smear method of Dudgeon is of great value for the early diagnosis of malignant growths. The sputum should be expectorated first thing in the morning so that there is no contamination with food particles. The specimen is to be coughed up. Preservatives or disinfectants must not be added, and the specimen is to be examined as soon as possible after collection. Specimens collected at bronchoscopy or coughed up shortly afterward are suitable for examination. Dudgeon advises that the sputum be poured on to an unglazed porcelain tile to concentrate it, but the author found that by examining it in a large Petri dish on a black background it was easier to pick out portions for examination. Blood streaked fragments or the more solid portions are picked out with a platinum loop or scalpel and are spread thinly on a slide. Several slides are prepared from each sputum. They are fixed by immersing at once in a bath of Schaudinn's solution and leaving for twenty minutes, washing in 70 per cent alcohol containing a trace of iodine to remove excess mercury bichloride (two minutes) and then in distilled water. The slides are stained with Mayer's hemalum (one and one-half to two minutes), blued in tap water, counterstained with eosin (two minutes), dehydrated, and mounted in Canada balsam. They are then examined with the low power of the microscope, and any suspected group of cells is submitted to a higher magnification. When the clinical evidence is strongly in favor of carcinoma, several specimens of sputum should be examined before a negative report is made. A negative report does not exclude malignant disease. The author used this method in 93 cases of suspected neoplasm of the lung. In 64.3 per cent of the cases he succeeded in demonstrating malignant cells. The cells were found not only in advanced cases but also in a significant proportion of those in which the growth was still operable. The test is of value in establishing malignancy when other methods of investigation, including bronchoscopy, have failed and when it is desired to explore the chest, for patients too ill to be submitted to other methods of investigation, and when the growth is masked by secondary inflammatory changes in the lung. It is urged that the test be employed more widely and that aspiration biopsy should be reserved for cases giving repeatedly negative sputum tests and should not be employed when surgical removal of the growth is envisaged.

British Medical Journal, London

1:557-590 (May 8) 1943

Desoxycorticosterone in Addison's Disease: Comparison of Different Methods of Administration. D. M. Dunlop.—p. 557.
Investigation of Hemolytic Transfusion Reactions. P. L. Mollison.—p. 559.
Lederle's Pertussis Antigen in Treatment of Whooping Cough: Report of an Investigation. R. S. W. Baker.—p. 562.
Gastroduodenal Surgery in the Aged. N. C. Tanner.—p. 563.
Incidence of Pulmonary Tuberculosis of Adult Type in Royal Air Force: Results of Mass Radiography of 75,000 Cases. A. G. Evans.—p. 565.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

49:581-728 (Dec.) 1942

*Clostridium Welchi Infection of Uterus Complicating Delivery. Coralie Rendle-Short.—p. 581.
Diet in Pregnancy. W. C. W. Nixon.—p. 614.
Intrapelvic Tuberculosis. J. R. Goodall.—p. 637.
Comments on Third Stage of Labor. R. Christie Brown, J. V. O'Sullivan and J. Sanctuary.—p. 646.
Benign Ovarian Neoplasms and Postmenopausal Hemorrhage. R. B. K. Rickford and Eileen M. Whapham.—p. 653.
Premarin in Some Postmenopausal Complications. J. R. Goodall.—p. 660.
Problem of Puerperal Morbidity. A. Sadovsky, A. Brzezinski and Y. M. Bromberg.—p. 664.
On Labor in Young and Old Primiparae. Y. M. Bromberg and A. Brzezinski.—p. 672.
Pregnancy After Thoracoplasty. F. R. Stansfield.—p. 682.
Obstetric Injuries of Perineum. I. Magdi.—p. 687.

Clostridium Welchi Infection of Uterus.—Rendle-Short reviews the literature on gas gangrene infection of the uterus following abortion or delivery and reports 6 original cases. The acute abdominal pain, jaundice, foul vaginal discharge, rapid pulse, possibly vomiting or diarrhea make a dramatic picture, particularly if there are the additional signs of hematuria, abdominal discoloration and gas escaping from the vagina. The fetus may or may not be distended with gas. In nearly all cases infection comes from outside following some manipulation, instruments being contaminated by fecal matter on the vulval hairs. In rare cases there has been no outside intervention and in such cases Clostridium welchi was probably present in the vagina. If the fetus is dead the danger of infection is much greater. There are two main clinical groups, one postabortal and the other puerperal, the postabortal being slightly more common. The symptoms depend on whether the infection is local or generalized. Survival occurs in most of the "local" cases; death occurs in well over 50 per cent of those with physometra or generalized infection. Modern treatment makes the outlook much better. Great care should be taken when intervention is necessary when a dead fetus is known to be present. Serum and sulfapyridine should be given prophylactically in a potentially infected case. Treatment consists in the prompt giving of anti-gas gangrene serum together with sulfapyridine as soon as the disease is suspected without waiting for a swab report. Dextrose and fluids should also be given.

Nature, London

151:399-426 (April 10) 1943. **Partial Index**

Value of Micro-Organisms in Nutrition (Food Yeast). A. C. Thaysen.—p. 406.
Development of Biologic Science in Russia. C. S. Koshtoyants.—p. 408.
Pioneers of Refrigeration. E. C. Smith.—p. 412.
*Development of Cold Agglutinins in Atypical Pneumonia. J. C. Turner.—p. 419.

Development of Cold Agglutinins in Atypical Pneumonia.—Turner points out that in addition to the classic isoagglutinins that delineate the four primary blood groups of man there exist in many normal serums other substances which may cause clumping of erythrocytes. They are called "cold" agglutinins, because in most instances their action appears only at low temperatures. Specific cold agglutinins concerned with the subgroups of type A blood have been distinguished. The cold agglutinins are, however, otherwise considered to be nonspecific, as they will produce clumping of all human red blood cells irrespective of group. Since they likewise affect the cells of the individual in whose serum they appear, they are sometimes named autoagglutinins. The detection of the cold agglutinins in 2 patients with "atypical" or "virus" pneumonia induced the author to search systematically for them in 22 cases of virus pneumonia. All the patients were soldiers in the overseas forces of the U. S. Army. Twenty-nine men with various infections served as controls. No less than 10 pneumonia serums produced a hard solid disk of agglutinated cells. This is in sharp contrast to the delicate clumping usually seen in the controls, none of which showed a disk. On the basis of observations in several examples of atypical nonpneumococcic pneumonia it appears likely that the titer of cold agglutinins in the serum rises during the acute period of this disease in contrast both to the convalescent phase and to pneumococcic pneumonia.

Revista de la Asoc. Méd. Argentina, Buenos Aires

56:633-676 (Dec. 15-30) 1942. **Partial Index**

*Intrapleural Injections of Sulfanilamide and Antigangrene Serum in Putrid Empyema. M. R. Castex, E. L. Capdehourat and A. Martinez Marchetti.—p. 633.
*Desoxycorticosterone Acetate in Enlargement of the Heart (Dietetic-Medicamentous Cardiac Beriberi). R. Dassen.—p. 643.
Kinesic Therapy: Its Effects on Digestive Apparatus: Experimental Study. A. Maggi and J. M. Nágera.—p. 650.

Sulfanilamide and Antigangrene Serum for Putrid Empyema.—According to Castex and his collaborators the therapy of putrid empyema consists in repeated pleural punctures followed by injections of pure oxygen and of a mixture of sulfanilamide and antigangrene serum. A preliminary lavage of the pleural cavity with sulfanilamide in isotonic solution of sodium chloride in the proportion of 0.25 Gm. of the former in 25 cc. of the latter is indicated in the presence of thick pus. Pneumothorax is induced by intrapleural injection of 200 cc. of air. In the presence of increased tension the air is removed during the puncture and an equal amount of pure oxygen is introduced. The mixture for each pleural injection consists of 4 Gm. of sulfathiazole, 3 Gm. of sulfapyridine, 1 Gm. of sulfanilamide and 30 to 50 cc. of polyvalent antigangrene serum. This treatment is given daily for twelve days, after which the serum is discontinued. The intrapleural administration of sulfanilamide is continued at intervals of two to four days or once a week until a cure is obtained as manifested by laboratory tests and by the sedimentation speed of the erythrocytes. Nausea, chills and dizziness are an indication for discontinuance of the serum treatment. The serum is temporarily contraindicated for patients with a bronchopulmonary fistula who require desensitization before recourse to the combined therapy. Blood transfusions, cardiac tonics and proper general care are indicated.

Desoxycorticosterone Acetate and Heart.—Dassen warns against the simultaneous administration of desoxycorticosterone acetate and sodium chloride in the management of the crises of Addison's disease. The combined therapy produces a rapid dilatation of the heart, which, however, can be rapidly reversed through the omission of the adrenal preparation and its replacement with a diuretic followed by sodium chloride in 6 to 8 Gm. daily doses. Desoxycorticosterone acetate alone is of value in the therapy of the addisonian crises. The drug should be discontinued as soon as the crisis is over, after which sodium chloride is indicated. The patient should be placed on a diet containing large amounts of potassium for as long as he is subjected to the adrenal therapy and on a diet containing very small amounts of potassium when he is on the sodium chloride therapy. In the case reported the teleroentgenograms showed a rapid enlargement of the heart shadow during the combined desoxycorticosterone and sodium chloride therapy. The size of the heart diminished as soon as the desoxycorticosterone was omitted and a diuretic and sodium chloride were given.

Klinische Wochenschrift, Berlin

21:97-120 (Jan. 31) 1942. **Partial Index**

*Physiologic Examination of Metabolism in Hepatic Insufficiency with Especial Consideration of Blood Sugar Curve After Oral Tolerance Test with Galactose and Levulose. H. Gohr and A. Schmitz.—p. 101.
Modification of Function of Corpus Luteum by Alpha Tocopherol (Vitamin E) During Normal Cycle. H. Winkler.—p. 105.
Quantitative Resorption Experiments with Pure Intestinal Toxins: Resorption and Storage of Small Quantities of Indole in Small Intestine of Rats with Chronic Enteritis. H. Nicolai.—p. 108.
Practical Significance of Measurement of Venous Pressure During Pericarditis. P. Gömöri.—p. 112.

Blood Sugar in Hepatic Insufficiency.—Gohr and Schmitz investigated the diagnostic value of the blood sugar curve following oral tolerance tests with 40 Gm. of galactose or 40 Gm. of levulose. The tests were compared with the sugar elimination in the urine, with the flocculation reactions of Takata, Bauer and Weltmann and with the clinical course. In hepatic lesions accompanied by ascites or edema the elimination tests often gave inaccurate information. The blood sugar curve is only slightly influenced by these disturbances and is therefore useful in such diseases as well as in the various types of jaundice. The curves are protracted in hepatic insufficiency and often reveal an abnormal increase in the blood sugar values. The galactose curve shows greater deviations from the normal than does the levulose curve and is therefore of greater diagnostic value. Forty Gm. of levulose is inadequate for a tolerance test. Both curves correspond somewhat to the precipitation reactions of Takata, Bauer or Weltmann and like these they indicate impairment of the hepatic parenchyma. Extrahepatic factors may exert their influence. The blood sugar curve following the galactose tolerance test together with the precipitation reactions permit a true estimate of the hepatic function. The lactic acid content of the blood was determined during the precoma and the coma of 2 patients with hepatic cirrhosis who died in hepatic coma. Considerably increased values were ascertained.

Zentralblatt für Chirurgie, Leipzig

69:289-336 (Feb. 21) 1942. Partial Index

Prognosis in Wounds of Heart. K. Holubec and V. Tolar.—p. 295.
Three Times Peptic Jejunal Ulcer: Lateral Connection of Stomach and Descending Duodenum. D. E. Schouten.—p. 303.
Experiences with Sulfonamide Therapy in Surgery, Particularly in Erysipelas. N. Liedberg.—p. 309.
Osteochondritis Dissecans in Ankle Joint. H. Aronsson.—p. 312.
*Excision of Ganglion Cervicale Superior in Peripheral Facial Paralysis. G. Plăcinteanu and D. Dobrescu.—p. 323.

Excision of the Superior Cervical Ganglion for Peripheral Facial Paralysis.—Plăcinteanu and Dobrescu discuss the primary suture of nerve ends, transplantation of nerves, attachment of the peripheral end of the facial nerve to a neighboring cerebral nerve, the myoplastic method, the suspension method and the excision of the superior cervical ganglion in the treatment of traumatic peripheral facial paralysis. They are chiefly concerned with the procedure mentioned last, which was first employed by Leriche. Their first patient presented a paralysis of the left side of the face with extreme lagophthalmos and drooping of the left angle of the mouth. Electrical treatment was ineffective. Extirpation of the superior cervical ganglion was followed by reduction of the lagophthalmos, by miosis and hyperemia of the conjunctiva and of the paralyzed part of the face. The patient had a sensation of warmth and no longer felt the inertia of the paralyzed muscles. Complete closure of the palpebral fissure became possible in the course of time and the angle of the mouth could be voluntarily contracted. Three other cases are reported. The authors conclude that excision of the superior cervical ganglion is of real value in the treatment of peripheral facial paralysis. This sympathectomy is directed particularly against the lagophthalmos, which either disappears or is considerably reduced. If, as is sometimes the case, the paralysis of the angle of the mouth is not corrected, a myoplastic procedure might improve the results.

69:545-576 (March 28) 1942. **Partial Index**

Operative Treatment of Irreparable Transverse Lesions of Spinal Cord and of Paralysis Due to Injury to Nerve Plexus. R. von Oppolzer.—p. 545.
*Study of Joint Effusions From Accidental Injury Including Traumatic Serous Knee Joint Effusions. W. Beyer.—p. 551.

Traumatic Joint Effusions.—Beyer performed eighty punctures in 50 cases of joint effusions. One hundred and sixty preparations were studied. On the third day after the accident a lymphocytosis was manifest. Other parts of the body were not involved. Beyer considers lymphocytosis as a manifestation of a normal course of healing of blood effusion and not as a manifestation of transition to a chronic effusion. Within fourteen to eighteen days at the earliest the change to a serous, amber colored, limpid effusion may develop from blood effusion. Unless the history and the clinical picture correspond, one should refrain from a diagnosis of a traumatic serous effusion. History previous to the accident should exclude pain in the knee joint or damage to the joint. The interval between accident and effusion should not exceed twenty-four to ninety-six hours. External signs of injury are helpful. Synovial cells and some lymphocytes but little or no polymorphonuclear leukocytes should be demonstrated on cytologic examination. Internal damage to the joint should be excluded. More frequent cytologic examinations for serous effusions are recommended.

Book Notices

Essentials of Industrial Health. By C. O. Sappington, M.D., Dr.P.H., Consulting Industrial Hygienist, President, Central States Society of Industrial Medicine and Surgery, Chicago. Fabrikoid. Price, $6.50. Pp. 626, with 63 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1943.

The scope of industrial health has become so inclusive that it is not possible for one person to become a specialist in every branch of the subject. The author has drawn freely, with acknowledgment, from literature to augment his experience in industrial health, to compile this textbook. With this type of treatment, practical and pertinent data are presented in almost all phases with the retention of the uniform style and philosophy of the author.

The presentation of the material follows the Outline for the Teaching of Industrial Health prepared by the joint committee from the American Association of Industrial Physicians and Surgeons and the Council on Industrial Health of the American Medical Association. This has led to some unavoidable repetition but assured coverage in a manner suitable for the student. The principles and methods of industrial health contained in detail are informative to the practicing physician yet couched in language to be of use to laymen such as industrial personnel and attorneys.

The book is divided into three parts, Industrial Health Administration, Industrial Hygiene and Toxicology, and Industrial Medicine and Traumatic Surgery, each with numerous subdivisions. Administrative functions with their application to the plant and individual worker are discussed. Health exposures and their engineering and medical control are treated in detail. Under the heading "Industrial Medicine and Surgery" are discussions of placement of workers, accidents, occupational diseases, nonoccupational disability and workmen's compensation and rehabilitation.

The author makes no pretense of discussing the diagnosis and treatment of all occupational diseases but does deal at length with those which occur most frequently.

This is an accumulation of much of the best material which has been written on present day industrial health. As such it makes fairly complete general information on industrial health available in one volume. It should prove valuable in teaching the subject. The application of the procedures to small plants could have been given more emphasis.

Hemolytic Syndromes. By William Dameshek, M.D., Tibor J. Greenwalt, M.D., Russell J. Tat, M.D., and Camille Dreyfus, M.D. A Reprint of an Exhibit Sponsored by the New England Medical Center, Boston, Mass. Presented at the 1942 Convention of the American Medical Assn., Atlantic City, June 1942. Awarded Certificate of Merit for Correlation & Presentation of Facts. Paper. Price, $1.50. No pagination. Boston, 1942.

Physicians who have attended the annual sessions of the American Medical Association have often expressed a desire to have reprints of some of the meritorious scientific exhibits. This is a reprint of an exhibit on hemolytic syndromes presented at the 1942 session in Atlantic City. It consists of about forty charts, diagrams and illustrations in loose-leaf form. Pertinent facts and theories concerning the physiology and pathology of blood destruction are presented in chart, diagram and outline form together with a brief review of the pathogenesis of hemolytic syndromes. The subjects of acute hemolytic anemia, congenital hemolytic jaundice and familial nonhemolytic jaundice, sickle cell anemia, Mediterranean anemia, hemoglobinurias, chronic hemolytic anemia, Rh factor and erythroblastosis fetalis are also epitomized in diagrams, illustrations and outline. Pertinent clinical and laboratory facts of the spleen and causes for its enlargement are presented in summary. Special procedures in studying hemolytic syndromes are indicated and a list of publications on pertinent hemolytic syndromes by the author and his workers are appended. The reprint of this exhibit material is most useful to physicians, students and those interested in hematology. Much time and thought have obviously been taken in the preparation of this material, and the value of a reprint goes beyond that of a mnemonic. It is a provocative correlation of facts that should be stimulating to any student of medicine.

Studien am menschlichen Sperma. Von Charles A. Joël. Cloth. Price, 20 Swiss francs; 12 marks. Pp. 154, with illustrations. Basel: Benno Schwabe & Co. Verlag, 1942.

This interesting and compact book demonstrates that scientific research in Europe is not entirely devoted to the destruction of man. The text is elaborately written and excellently illustrated with various forms of sperm dyscrasias and morphology. A bibliography of 538 references accompanies the volume.

The first section of the book summarizes man's knowledge of the subject from the time of Leeuwenhoek. In speaking of the method of obtaining material, the author stresses the fact that a week's continence should precede an examination of an ejaculate. The author makes it a practice to wait thirty minutes before examining a masturbated ejaculate in order to be sure that the sperm heads have had time to free themselves from the mucus. He stains all specimens with Ziehl's carbol fuchsin.

In the consideration of a diagnosis of necrospermia the author cautions and goes to great length to show that although the spermatozoa may appear to be motionless they may not be dead. After the addition of isotonic solution of three chlorides, isotonic dextrose, isotonic solution of sodium chloride or buffer solution, the heretofore motionless spermatozoa may begin to move again in twenty-four hours and be completely revived. The author finds that to revive motionless spermatozoa and cause activity it is best to use 8 parts of 5.42 dextrose to 2 parts of eighth normal magnesium chloride solution. He adds 10 parts of this mixture to 1 part of ejaculate. The spermatozoa if alive will revive and become active. After ten minutes if there is no activity he makes a diagnosis then, and only then, of necrospermia. This state of inactive but viable sperm he terms akinesis.

TABLE 3.—*Influence of Ferment Inhibitors on Motility of the Sperm*

Ferment	Sperm	Sperm Plasma	Prostate	Seminal Vesicles
Cholinesterase	—	+	+ +	..
Monoamino-oxydase	..	?	+ +	+ +
Diamino-oxydase	—	+ +	+	+

In discussing morphology Joël rightly condemns Blass's heat fixation method because of the change or destruction of the cellular proteins which it causes. He considers supervital staining the method of choice in preparing specimens for microscopic examination.

Diamino-oxydase was first reported by Zeller in 1938, and it is identical with Best's histaminase and has a great deal to do with the sexual apparatus in man as well as in animals. Diamino-oxydase is found in the blood serum of pregnant women and in the liver of pregnant rats. It is also found in human spermatozoa, the human prostate, the semen and the seminal vesicles. When a ferment acts on polyamino-oxydase (spermedine) it breaks up into histamine, cadaverine, putrescine and agmatine, during the process of which oxygen is absorbed. It is this absorption of oxygen that can be measured. The process of fertilization has some connection with the chemical diamino-oxydase. A test of the blood plasma during pregnancy shows increased quantities of diamino-oxydase.

The work of Belanochkin with inhibitors is mentioned and utilized. Some of these substances, as potassium cyanide, neutralize the substance diamino-oxydase. A rather detailed discussion of activators and inhibitors of spermatic activity is given. The results of the author's own research work presented in this volume are as follows:

1. The diamino-oxydase of human semen is present in the sperm plasma and not in the cellular elements.
2. Cholinesterase is also present only in the sperm plasma.
3. In the prostate there is very little diamino-oxydase but more of monoamino-oxydase and cholinesterase.
4. The seminal vesicles contain the same amount of monoamino-oxydase and diamino-oxydase as the prostate.
5. Carbonyl reactions (semicarbocide and dianedon) inhibit in small concentration the motility of spermatozoa and activate them in greater concentrations.

This volume furnishes a fund of information which should be of considerable value to students, teachers and investigators of the subject as a work of reference.

Neurology. By Roy R. Grinker, M.D., Chairman, The Department of Neuropsychiatry of the Michael Reese Hospital, Chicago. With the assistance of Norman A. Levy, M.D., Associate Neuropsychiatrist, Michael Reese Hospital, Chicago. With a chapter on Brain Tumors by Paul C. Bucy, M.D., Professor of Neurology and Neurological Surgery, University of Illinois College of Medicine, Chicago. Third edition. Fabrikoid. Price, $6.50. Pp. 1,136, with 416 illustrations. Springfield, Illinois & Baltimore: Charles C Thomas, 1943.

This book was first published in 1933, and the revisions, reorganizations and additions of new material enhance the value of the volume. The author continues in his "attempt at a correlation of certain biological data which are considered of importance to the study of the human nervous system in health and in disease." The first section deals with general embryologic, anatomic, physiologic and pathologic considerations, which provide a suitable introduction to the clinicopathologic descriptions of the major portion. While this introduction offers a source of review for the student who has already studied similar material in the past, it is not in itself an adequate source of material for the student to whom it is newly presented. Less effort at encyclopedic completeness and more emphasis on clinicopathologic presentations would be more useful. The pathologic descriptions are sometimes vague and sketchy and apt to be confusing because of lack of correlation of the reports of the various investigators. The author's effort, however, to correlate structure and function is an admirable one and on the whole ably presented.

To the chapter on pathology have been added a few pages on chemistry, and about this the author pointedly remarks "Confidence that biochemical research alone will solve the problem of mental disease without the aid of dynamic psychology is, however, not justified in the light of a broader point of view. It represents a displacement from the old narrow concept that the etiology of personality deviations will be discovered in cell changes visible under the microscope (Nissl) to a moderized version that it will be discovered in a test tube." The psychosomatic approach to problems formerly considered as almost wholly physical or chemical indicates the modern trend of etiologic approach.

In the course of a few pages the author has done remarkably well in summarizing our present knowledge of electroencephalography. Recent developments in neurophysiology and experimental neurology, including the newer observations on hypothalamic functions and corticohypothalamic relations, are adequately treated. The operation of prefrontal lobotomy as performed by Freeman and Watts is mentioned, but those authors would probably take exception to the statement that "the procedure is not recommended except as a last resort and is still in its experimental stage." The chapter on the extrapyramidal motor system is largely rewritten, Bucy's recent review of the neurologic mechanisms of athetosis and tremor being used as the nucleus of the exposition on extrapyramidal dysfunction. Too much emphasis is placed on the efficacy of the "Bulgarian cure" of parkinsonism. In the discussion of aphasia the author emphasizes the clinical formulations of Henry Head, but not enough detail of the technic of examination of the aphasic patient and of the interpretation of findings is given. The average medical student finds this a difficult subject to comprehend and is usually at a loss as to the methods of approach to the aphasic patient. The section on intracranial tumors is written by Paul C. Bucy and is a clear, succinct review of the subject and written in a style that is not too difficult for the initiate in neurology to understand.

Recent developments in clinical neurology, such as the use of the sulfonamides in therapy, the Sister Kenny treatment of poliomyelitis, St. Louis type of encephalitis, equine encephalomyelitis, Guillain-Barré syndrome, nutritional and vitamin deficiencies, herniated nucleus pulposus and the use of the electroencephalogram and arteriography in neurologic diagnosis are all discussed in an appropriate fashion for a textbook of this kind.

The illustrations are good and many new tables culled from the literature have been added, some good and others so detailed as to be confusing to the average student. The references are carefully selected and informative and the index is excellent. The book can be well recommended.

Sulfanilamidoterapia local. Por el Doctor Juan Naslo, Facultad de ciencias médicas del Litoral. Paper. Pp. 150, with illustrations. Buenos Aires: Editorial Aniceto López, 1942.

The author outlines his own experiments in the Pharmacologic Institute of the Faculty of Medicine of the Litoral. At the same time he describes his research work in the clinics of the Rosario Hospital of Buenos Aires. The work deals with the sulfonamide compounds locally applied. The experimental section deals with all kinds of wounds, aseptic and septic, experimentally provoked. Some of them were infected with several strains of streptococci and staphylococci, with the addition in some instances of foreign bodies, and at times suturing and treating at different periods. The group of animals amounted to 185. Experimentally he made wounds, general and localized peritonitis, burns and fractures of all types. The clinical section deals with an enormous group of surgical diseases as well as with some localized lesions in the specialties of dermatovenereology, ophthalmology, odontology, otolaryngology and orthopedics. The number of patients treated is also extensive. All kinds of bacterioscopic and bacteriologic controls were practiced. There is also a description of the effects of the drugs on each strain in vivo as well as in vitro, and the author succeeds in giving the reader a complete idea of how to treat each disease and how to use each sulfonamide drug.

American Agriculture, 1899-1939: A Study of Output, Employment and Productivity. By Harold Barger and Hans H. Landsberg. National Bureau of Economic Research, Inc., Number 42. Cloth. Price, $3. Pp. 440, with 47 illustrations. New York: National Bureau of Economic Research, Inc., 1942.

In wartime the place of agriculture in the national economy has assumed unusually widespread interest. Discussions of our ability to function as a bread basket for the world are heard with increasing frequency on the radio, in the press and on the streets. For those who would attempt to evaluate the plethora of proposals which crop up, the present volume should prove highly valuable. The number of persons gainfully employed in agriculture appears to have remained substantially constant over the period studied, although farm production has gone up approximately 50 per cent. This trend in production barely keeps pace with the population growth; thus it may be seen that output per worker has risen. Compared with the increase in output of manufactured goods, which show an increase of some 400 per cent within the period studied, agriculture makes a poor showing. Publication of the present volume was made possible by investigations conducted by the National Bureau of Economic Research, Inc., under grants from the Maurice and Laura Falk Foundation of Pittsburgh.

Clinical Diagnosis by Laboratory Methods: A Working Manual of Clinical Pathology. By James Campbell Todd, Ph.B., M.D., and Arthur Hawley Sanford, A.M., M.D., Professor of Clinical Pathology, University of Minnesota (The Mayo Foundation). Tenth edition. Cloth. Price, $6. Pp. 911, with 380 illustrations. Philadelphia & London: W. B. Saunders Company, 1943.

During the last thirty-five years clinical pathology has undergone marvelous development. It is now a recognized specialty in medicine with some thousands of physicians who devote themselves exclusively to its practice. Each year new technics are developed which throw still further burdens on the laboratory as the handmaiden of medical skill. An especially new phase is the use of the laboratory as a guide to therapy as occurs in the administration of the sulfonamides or vitamin K. The isolation of viruses, the classifications of Rickettsia, the determination of blood groups and the use of physical methods such as photelometric technics are further examples of the great progress in this field. Moreover, new technics are now submitted promptly to comparative studies and officially evaluated, as, for instance, the multiple serodiagnostic methods used in syphilis. All these technics are described in this work. The present edition is, moreover, enriched with seventy-two new illustrations. Early in its career this book was accepted as a standard in its field. The intensive consideration given by the authors to maintaining its quality has made its utility still greater. The appendixes, which deal with office laboratory methods and equipment, staining solutions, normal solutions, weights and measures and the laboratory findings in important diseases, add greatly to its practicality. The detailed index, occupying more than fifty pages, enables constant, ready use.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

EFFECTS OF MENSTRUATION, PREGNANCY AND ANESTHESIA ON PERMANENT WAVES

To the Editor:—I would be interested in your opinion of the oft repeated claims by hairdressers that (1) permanent waves are not so successfully given to a pregnant person as to one not pregnant, (2) permanent waves are not so successfully given within four weeks of an ether anesthetic as prior to the anesthetic and (3) permanent waves are not successfully given when the menses are present.

M.D., Colorado.

ANSWER.—Of the many explanations given by hairdressers for the failure of permanent wave manipulations, the three cited seem to be among the most reasonable. With regard to statements 1 and 3 it has been shown by Basler (Menstruation und Haarwurzelfestigkeit, *Med. Klin.* **35**:1111, 1930) by careful measurement of the pull needed to epilate hairs on the forearm and other parts of the skin that the force necessary varies during the menstrual cycle. Just before the flow is due the hair becomes more firmly fixed in the skin and a greater weight was necessary in Basler's apparatus in order to loosen it. As menstruation began the amount of weight needed decreased until at the end of the monthly period it was considerably lower than normal. After the menstrual flow ceased, the firmness with which the hair was fixed in the skin returned to normal. In 1 case the weight necessary to loosen the hair increased to 24 Gm. just before the period, went down to 9 Gm. at the end of the period and then soon returned to normal, a point between these two extremes. Basler attributes this weakening of the connection between the hair and the skin to the increased succulence of the skin during menstruation. If this change occurs also in the scalp, as is reasonable to surmise, it takes little imagination to think that it may affect the way in which the hair responds to the manipulations intended to produce the permanent wave.

With regard to statement 2, one must consider in connection with any administration of ether the condition, operation or parturition which called for anesthesia. It is known that such events may rarely be followed in the course of one or several months by a partial, usually temporary, alopecia. Whether caused by the operation or the anesthesia or both, it is possible that the hair in a much larger percentage of women may be affected by such disturbances so that it reacts badly to the efforts of the hairdresser.

Thus, while there is no definite proof of the claims made, meager knowledge of the changes in the skin and hair during menstruation and pregnancy and following parturition and surgical operations for which ether anesthesia was used seems to favor the possibility that such claims are correct.

HEALING OF FRACTURES IN OSTEITIS DEFORMANS

To the Editor:—A patient aged 50 has a transverse fracture of the upper third of the left femur at the site of a previous fracture in 1937. Then, as now, he was suffering from osteitis deformans. The bone is now considerably deformed, but reduction has been satisfactory. Will you please give me any suggestions you can to assist in getting firm union in this bone? His present reduction is being maintained by a plaster spica cast from the breast to the toes.

M.D., Ontario.

ANSWER.—As a rule, fractures of patients who have osteitis deformans (Paget's disease) unite, and in this case, in which there is a transverse fracture of the upper third of the left femur, chances are in favor of union being obtained. Care should be taken to keep the leg held quiet sufficiently long and in proper position to make certain that union is present before weight bearing is permitted. The usual indications of firm union are lack of tenderness and pain on pressure at the site of fracture and bony trabeculations crossing the line of fracture in the x-ray films. Every effort should be made to insure this union as bone grafting is not as successful in this type of case as in normal conditions.

VARIATIONS IN ORAL TEMPERATURES AND TUBERCULOSIS

To the Editor:—Like most physicians who have practiced only in hospitals, I have seldom had occasion to deal with the practical aspects of recording oral temperatures. During the past few months, however, while convalescing at home from a small pulmonary tuberculous lesion, I have naturally made numerous recordings of my own temperature and have found that the matter is somewhat more complicated than I had heretofore suspected. Using three different, apparently accurate, thermometers I have found that the maximum reading is never reached until after the lapse of at least six minutes and often only after the lapse of ten to twelve minutes. This occurs if the thermometer has not been used for several hours. If, on the other hand, the mercury is shaken down after a recording and the temperature immediately taken a second time, the previous maximum reading will be reached in two minutes or less. (The practical implication of the latter observation is that if the same thermometer should be used on a number of patients in succession and recordings made at the end of the customary three minute period, only the temperatures of the second and succeeding patients would be true maximums.) A typical series of readings would be 94.0 F. (initial reading), 98.3 F. (three minutes), 98.5 F. (five minutes), 99.2 F. (ten minutes) and 99.3 F. (twelve minutes). In a second recording taken immediately afterward, the maximum of 99.3 F. would be reached in two and one-half minutes. I have been particularly careful in making these observations not to cause any friction between my tongue and the bulb of the thermometer. I fully appreciate that when dealing with temperatures of 100 F. and over this situation may not obtain, or, if it does, it is of no consequence; I do feel, however, that it is of the utmost importance to know whether a patient's true temperature is 98.4 F. or 99.3 F., particularly when the diagnosis or the state of activity of such a disease as tuberculosis is involved. If my own temperature had been taken during the past few months in the conventional manner, that is, using a three or even a five minute period, it would have been recorded invariably as 98.6 F. or below, whereas after twelve minutes it has been almost invariably between 98.9 F. and 99.3 F., usually at 99.0 F. The higher value is of course the one which would have been recorded had my temperature been taken with a thermometer that had been used immediately before on other patients. These minute variations would seem far less important to me if it were not for the fact that this questionable low grade fever is the only objective sign of possible activity of my tuberculous process now present, other than a pulse rate varying between 80 and 96. At least six competent radiologists and phthisiologists have declared that I have shown no evidence of activity for a number of months; their almost unanimous opinion is that I can now begin a normal mode of life. One has taken the extreme view that my apical shadow represents a pleuritis rather than a parenchymal lesion and that my initial symptoms were probably due to a bronchitis rather than to a tuberculous process. All these men, I am certain, would attach great significance to my temperature range if it occurred after the usual three or five minute period, but when I inform them that it occurs only after ten to twelve minutes they are inclined to dismiss it as of no importance. It is of added interest that during the five months I spent in the hospital my temperature after the third day was never recorded on the chart as being above 98.6 F.; during the same period my own "unofficial" readings were frequently above 99.0 F., provided I kept the thermometer in my mouth several minutes longer than the nurse was accustomed to do. Will you kindly furnish me with an opinion of the possible significance of these slight elevations, as well as with any appropriate references to the literature?

M.D., Massachusetts.

ANSWER.—The temperature of various organs of the body differs from time to time, depending on such factors as activity. Obviously, thermometer readings from the axilla, the mouth or the rectum are not true body temperature. Nevertheless, rectal and oral temperatures serve the usual clinical purpose of determining whether significant fever is present. Oral temperature recordings are influenced to a considerable degree by the atmospheric temperature. There are numerous causes of so-called slight elevations due to nervousness, activities of the digestive system or general body activities. Persons with active tuberculosis have reported temperature readings of a half degree higher on one side of the mouth than the other. This probably is due to the same phenomenon as results in the so-called hectic flush of one cheek or the burning sensation of a given part of the body such as the lobe of one ear or the chest wall. This phenomenon has been explained on the reflex basis. When the sensory fibers of the trigeminus nerve are stimulated, dilatation of the vessels occurs in the areas which these fibers supply. The irritation produced by disease in the lung results in stimuli which pass over the afferent fibers of the vagus nerve. In the trigeminus nerve there are dilator fibers of cerebral origin. Thus the impulses carried over the vagus nerve from the area of the disease pass reflexly over the trigeminus nerve and result in dilatation of the blood vessels.

The 98.6 F. which is generally considered as the normal oral temperature is really an average and was determined by taking the temperatures of large numbers of persons apparently in good health. Many were below and many were above this level. Some individuals who are in excellent health have normal oral temperatures of or slightly above 99 F.

The observation made with reference to the increase in the temperature recording after having the thermometer in the mouth much longer than the usual time has been made by many.

It is usually due to the fact that when the mouth is kept closed for several minutes the temperature rises because of the absence of influence of the atmospheric temperature and in time closely approximates the rectal temperature. On the same basis one may explain the fact that when the thermometer is removed and the mercury is quickly shaken down and is immediately replaced there is little opportunity for the mouth temperature to be reduced by the atmospheric temperature. Most clinicians agree that a mouth temperature of 99 F. or even slightly higher is well within normal limits when the thermometer is retained in the mouth from five to ten minutes, and therefore this is no indication whatever of the activity of a tuberculous process. If there is no other evidence of active tuberculosis, the temperature readings mentioned should not be considered significant.

LENGTH OF STORAGE IN "DEEP FREEZE" COMPARTMENT

To the Editor:—As a direct result of wartime economy and probably to be carried into the peace which follows, foods are being stored in "deep freeze" compartments at temperatures from 10 to 20 degrees below zero. The idea, of course, is that these foods can be kept at these temperatures indefinitely. To all appearance, meats and vegetables taken out of these compartments at any time are absolutely fresh and in excellent condition. However, most sales pamphlets which advertise these "deep freezers" claim that fish should not be kept more than four months and meat more than eight months. Fish, so it is claimed, undergoes a chemical change which takes place in storage. As a result of these suggestions, much meat and fish throughout the country is thrown away at the end of this period in order to avoid the "poisoning" effect which supposedly sets in. I think this idea should either be confirmed or emphatically denied on the basis of facts. My own thought is that, at the low temperature which is created in these compartments, animation is completely suspended and that no chemical deterioration takes place.

Paul Lahvis, M.D., Gowanda, N. Y.

ANSWER.—There are no changes in properly prepared frozen and stored fruits, vegetables or meats which develop poisonous products during frozen storage. Fish, after several years' storage, might be indigestible or unpalatable but not poisonous.

Quality deterioration on prolonged storage does occur and is faster at 5 and 10 F. than at 0 and —10 F. Deterioration, chiefly the development of rancidity, is more pronounced with fatty or oily products such as fish or pork and is accelerated by widely fluctuating storage temperatures and faulty packaging.

Because of this deterioration in quality and for economic reasons, producers of frozen foods try to move their products within a reasonable period of time, usually four to six months for pork and eight to ten months for most meats. Foods which are held longer than this do not develop harmful properties, and often the deterioration is so slight that only an expert can detect the change. Discarding good meat or fish is wasteful practice and should be strongly condemned.

SULFATHIAZOLE OINTMENT FOR THE EYE

To the Editor:—I am convinced after repeated observations on patients that the sulfathiazole ointment or cream such as is flooding the world's market today is harmful to the eye when introduced into the conjunctival cul-de-sac. One application produces sufficient annoyance to convince me that it is not a harmless agent. Many applications and rubbing produce a keratoconjunctivitis not unlike the virus conjunctivitis of the West Coast. Any one may readily elicit this experience if he will place a small amount of the grease in the eye, and there is ample evidence that this drug acts as an escharotic. T. J. Dimitry, M.D., New Orleans.

ANSWER.—There are three types of inflammation from sulfathiazole ointment in the eye which can be readily defined. The first is a typical allergic reaction with dermatitis of the eyelids which disappears without residual effects as soon as the drug is discontinued. The second is a conjunctival inflammation produced by an irritating base such as the vanishing cream base occasionally used in preparations designed for the skin only. The third is a mild traumatic reaction from improperly prepared ointment containing large crystals. The suggestion that sulfathiazole ointment as prepared for eye use acts as an escharotic is false. This also applies to the statement that many applications produce a keratoconjunctivitis like the epidemic keratoconjunctivitis of the West Coast. As with the other sulfonamides, sulfathiazole ointment is being used indiscriminately and unnecessarily in many cases; but the only apparent danger from this is the sensitization of certain individuals so that the drug cannot be used by mouth when indicated by pneumonia or other serious illness. These cases of sensitization are rare, however. Damage to the eye resulting from the use of sulfathiazole ointment has not been observed in an extensive experience with the local use of this drug. It would be well to have commercial preparations labeled carefully so that ointment bases designed only for cutaneous use would not be employed in the eye. The correspondent may have been using one of the cutaneous preparations.

ALLERGY TO CERTAIN FOODS DEVELOPED AFTER APPENDECTOMY

To the Editor:—In November 1942 I had an appendectomy. Three weeks later I suddenly began to have angioneurotic edema. This has persisted, involving various parts of my body. I had a number of intradermal tests, but most of the reactions were negative. However, by means of elimination diets I have found that I am sensitive to wheat, chocolate, eggs, bananas and milk What puzzles me is the reason for this. In the past I occasionally would have a hive or two following ingestion of eggs. I also have had dust allergy but never angioneurotic edema. In the way of therapy I find that if I watch my diet I am symptom free. I have tried histamine, histaminase and calcium, but the allergy persists. I might mention that my father-in-law, who underwent an appendectomy one week prior to me, has hives on eating fish. He never had before. Can you explain this phenomenon? M.D., Pennsylvania.

ANSWER.—No one can say why angioneurotic edema suddenly develops in certain individuals. It is undoubtedly due to sensitivity to certain foods or drugs. It frequently happens, however, that sudden overindulgence in a food will bring on symptoms which would not have occurred had the food been eaten in moderate amounts. Quinine is one of the most common causes, but other drugs may be responsible. As this patient has learned by means of elimination diets that he is sensitive to wheat, eggs, chocolate, bananas and milk and has no symptoms when he avoids these, it would be wise to continue avoiding them for a month or two. The foods should then be tried one at a time in fairly large quantities and at intervals of a week or two. In testing, it would be wise to try the food in a cooked form rather than in a raw state. If no symptoms occur from boiled milk, for example, then raw milk can be tried. Recipes for wheat free foods may be obtained from the Ralston-Purina Company.

IRRADIATION FOR CANCER IN PRESENCE OF TUBERCULOSIS

To the Editor:—Is active pulmonary tuberculosis a contraindication to the use of high voltage roentgen irradiation for (1) cancer of the lung or (2) cancer in other organs of the body?

Nathan Sedofsky, M.D., Oteen, N. C.

ANSWER.—1. Since cancer of the lung is not curable by radiotherapy and since the palliative help which can be expected is distinctly limited, one should hesitate to irradiate a carcinoma of the lung in the presence of active pulmonary tuberculosis. The chances of harming the patient under these circumstances would seem to be greater than any hope of benefit.

2. Whether to irradiate cancer in another organ of the body depends both on the site of the cancer and on the chances of cure or prolonged palliation under the special circumstances that are encountered. Obviously, one must weigh the chances of improving the neoplastic condition against the chances of causing harm to the active pulmonary lesion.

DIETHYLSTILBESTROL

To the Editor:—I read with interest the question and answer in The Journal, May 22, 1943, entitled "Contraindications for Diethylstilbestrol." I was especially interested in some of the contraindications, such as excessive menstrual flow and prolonged menstrual flow. It has been discovered that diethylstilbestrol is the most efficient drug yet for the treatment of the two conditions (Karnaky, K. J.: *South. M. J.* **32**: 813 [Aug.] 1939; **33**: 1045, 1285 [Dec.] 1940; **35**: 838 [Sept.] 1942; *Texas State J. Med.* **36**: 379 [Sept.] 1940; *J. Nat. M. A.* **32**: 235 [Nov.] 1940; *M. Times* **69**: 199 [May] 1941; *Am. J. Obst. & Gynec.* **43**: 385 [March] 1942. McGinn, E. J.: *J. Clin. Endocrinol.* **2**: 302 [May] 1942. Cuyler, W. K.; Hamblen, E. C., and Davis, C. D., *ibid.* **2**: 438 [July] 1942). It has been found in the Jefferson Davis Hospital, Department of Obstetrics and Gynecology, Research Division, that diethylstilbestrol will stop uterine bleeding quicker than the time it takes to get the patient to the hospital, prepare the patient for and then perform the dilation and curettage of the uterus. For uterine bleeding with or without fibroids, give five 5 mg. diethylstilbestrol (plain) tablets by mouth and follow with two to three 5 mg. tablets every fifteen minutes until the bleeding stops. Then give one 5 mg. tablet every night for thirty nights, plus desiccated thyroid to tolerance dose and one lipoiodine tablet every morning for sixty mornings. In cases of excessive menstrual flow and all menstrual disorders due to an endocrine cause or causes whether it is spotting, amenorrhea or flooding, the treatment is the same. After the uterine bleeding stops, the uterus can be examined by taking an endometrial biopsy under a general anesthetic and the tissue examined for signs of malignancy. If the patient continues taking diethylstilbestrol she will become tolerant to the drug in five to six days. If she becomes too nauseated she can insert one 1 grain pentothal sodium rectal suppository every three to four hours. I have been unable to find any harm from diethylstilbestrol after giving it to 3,227 patients during the past five years. It did not stimulate malignant cells.

Karl John Karnaky, M.D., Houston, Texas.